Dräger medical
A Dräger and Siemens Company

Babytherm 8004/8010

Open Care Infant Warmer System

Operating Instructions

M1-29298

WARNING:
For a full understanding of the performance characteristics of this equipment, the user should carefully read this manual before operating.

NOTICE

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Important Safety Information

Operator's Responsibility for Patient Safety

WARNING !

Strictly follow this Operator's Instruction Manual.
Any use of the product requires full understanding and strict observation of all portions of these instructions.
The equipment is only to be used for the purpose specified under “Intended Use” on page 14.
Observe all WARNINGS and CAUTIONS as rendered throughout this manual and on labels on the equipment.

The design of the equipment, the accompanying literature, and the labeling on the equipment take into consideration that the purchase and use of the equipment are restricted to trained professionals, and that certain inherent characteristics of the equipment are known to the trained operator.
Instructions, warnings, and caution statements are limited, therefore, largely to the specifics of the Dräger design.
This publication excludes references to various hazards which are obvious to a medical professional and operator of this equipment, to the consequences of product misuse, and to potentially adverse effects in patients with abnormal conditions. Product modification or misuse can be dangerous. Dräger Medical, Inc. disclaims all liability for the consequences of product alterations or modifications, as well as for the consequences which might result from the combination of this product with other products whether supplied by Dräger or by other manufacturers if such a combination is not endorsed by Dräger Medical, Inc.

Patient monitoring

The operators of the infant warmer system must recognize their responsibility for choosing appropriate safety monitoring that supplies adequate information on equipment performance and patient condition. Patient safety may be achieved through a wide variety of different means ranging from electronic surveillance of equipment performance and patient condition to simple, direct observation of clinical signs.
The responsibility for the selection of the best level of patient monitoring lies solely with the equipment operator.

Limitation of Liability

Dräger Medical, Inc.'s liability, whether arising out of or related to manufacture and sale of the goods, their installation, demonstration, sales representation, use, performance, or otherwise, including any liability based upon Dräger Medical, Inc.'s Product Warranty, is subject to and limited to the exclusive terms and conditions as set forth, whether based upon breach of warranty or any other cause of action whatsoever, regardless of any fault attributable to Dräger Medical, Inc. and regardless of the form of action (including, without limitation, breach of warranty, negligence, strict liability, or otherwise).

THE STATED WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NONINFRINGEMENT.

Dräger Medical, Inc. shall not be liable for, nor shall buyer be entitled to recover any special incidental or consequential damages or for any liability incurred by buyer to any third party in any way arising out of or relating to the goods.

Warranty

All Dräger products are guaranteed to be free of defects for a period of one year from date of delivery.

The following are exceptions to this warranty:

1. The defect shall be a result of workmanship or material. Defects caused by misuse, mishandling, tampering, or by modifications not authorized by Dräger Medical, Inc. or its representatives are not covered.

2. Rubber and plastic components and materials are warranted to be free of defects at time of delivery.

Any product which proves to be defective in workmanship or material will be replaced, credited, or repaired with Dräger Medical, Inc. holding the option. Dräger Medical, Inc. is not responsible for deterioration, wear, or abuse. In any case, Dräger Medical, Inc. will not be liable beyond the original selling price.

Dräger Medical, Inc. is not responsible for normal deterioration, wear, or abuse. In any event, Dräger Medical, Inc. will not be liable beyond the original selling price of said items. This warranty applies only if the following conditions are met:

1. Dräger Medical, Inc. or its qualified representative is promptly notified, in writing, upon detection of the defective material or equipment.

2. Examination by Dräger Medical, Inc. or its qualified representative confirms that the defect is covered by the terms of this warranty.

The exclusive remedy in the event of breach of this warranty shall be limited to repair or replacement of, or credit for, the product, equipment or parts. Dräger Medical, Inc. alone shall choose which of these options is appropriate.

The above is the sole warranty provided by Dräger Medical, Inc. This warranty is in lieu of all other warranties, written or oral, statutory, express or implied, including without limitation the warranty of merchantability, fitness for a particular purpose or non-infringement of patent, trademark, or copyright.

Dräger Medical, Inc., Telford, PA

Definitions

WARNING !

A WARNING statement refers to conditions with a possibility of personal injury if disregarded.

CAUTION !

A CAUTION statement designates the possibility of damage to equipment if disregarded.

NOTE: A NOTE provides additional information intended to avoid inconveniences during operation.

Inspection	examination of actual condition
Service	measures to maintain specified condition
Repair	measures to restore specified condition
Maintenance	inspection, service, and repair, where necessary
Preventive Maintenance	Maintenance measures at regular intervals

Typing conventions in this manual

Display messages are printed as »**message**«, e. g:

»battery charge low«

Controller keys are designated in **bold** print, e.g.

man.

Summary of WARNINGS and CAUTIONS

General WARNINGS and CAUTIONS

WARNING !

**Strictly follow this Operator's Instruction Manual !
Any use of the product requires full understanding and strict observation of all portions of these instructions.
The equipment is only to be used for the purpose specified under "Intended Use" (see page 12). Observe all WARNINGS and CAUTIONS as rendered throughout this manual and on labels on the equipment.**

WARNING !

Babytherm 8004/8010 must only be used by properly trained clinical and nursing staff under the supervision of a qualified physician familiar with the currently known risks and benefits of using an infant warmer.

WARNING !

**Dräger cannot warrant or endorse the safe performance of third party accessories for use with the Babytherm 8004/8010 infant warmer system.
Only use accessories that are qualified to the required specifications for an intended use in an oxygen enriched environment.**

WARNING !

**This device is to be used only in rooms with line power installations complying with national safety standards for hospital patient rooms (e.g., IEC/EN 60601.1, "Safety of Medical Equipment").
To maintain grounding integrity, connect only to a "hospital grade" receptacle. Always disconnect supply before servicing.**

WARNING !

**DANGER, risk of explosion if used in the presence of flammable anesthetics.
This device is neither approved nor certified for use in areas where combustible or explosive gas mixtures are likely.**

WARNING!

Electrical connections to equipment which is not listed in these Operating Instructions should only be made following consultations with the respective manufacturers or a qualified expert.

WARNING !

General information regarding electromagnetic compatibility (EMC) in accordance with the international EMC standard IEC 60601-1-2: 2001

Electrical medical devices are subject to special precautionary measures with respect to electromagnetic compatibility (EMC) and must be installed and commissioned in accordance with the EMC information provided in the technical documentation available on request from DrägerService.

Portable and mobile HF communication devices can affect electrical medical devices.

Do not touch the pins on plugs carrying ESD warnings and do not establish connections between these plugs without taking protective measures against ESD. Such measures include wearing antistatic clothing and shoes, holding an earthing bolt before and during connection, or wearing electro-insulating or antistatic gloves. The staff concerned should receive training in respect of these ESD protective measures.

WARNING !

**Do not use mobile phones within 33 feet (10 m) of the device.
Mobile phones can cause interference to electrical and electronic medical devices, thereby putting patients at risk.***

* Dräger medical devices comply with the interference immunity requirements of the specific standards for the products or EN 60601-1-2 (IEC 60601-1-2). However, depending on the design of the mobile phone and situation of use, field strengths may occur in the immediate environment of a mobile phone that exceed the limits of the standards quoted and therefore cause interference.

WARNING !

It is the responsibility of the physician to draw conclusions from any skin temperature measurements taken.

WARNING !

Skin temperature control must not be used with infants in shock. Because of reduced peripheral blood flow the skin temperature of these infants occasionally lies well below the core body temperature. Using a skin temperature control system could lead to overheating. We recommend to set heater output manually when caring for patients with such conditions.

WARNING !

Always check infant temperature at least at the intervals of the timed alarm when using radiant heater in manual mode.

WARNING !

Do not use skin temperature control for infants with a fever. Their skin temperature is significantly higher than normal so that controlling skin temperature would lead to hypothermia. We recommend to set heater output manually when caring for patients with such conditions.

CAUTION !
Restriction of Distribution

Federal Law and Regulations in the United States and Canada restrict this device to sale by or on the order of a physician.
Device for use only in health care facilities and only by persons with specific training and experience in the use of the device.

Precautions during preparation

WARNING !

Stability
To ensure continued protection against tipping over, do not place unit on a slope of more than 10°.
Always observe load restrictions on indivual shelves/ poles as well as maximum combined load capacities.

WARNING !

For active infants use side panels of 230 mm (9 inch) height.
Inner panels must be used with all patients, regardless of whether (outer) side panels are open or closed!
Otherwise the patient could fall out!
Supervise active and older infants particularly closely.

WARNING !

Always select correct mattress type for intended mode of operation, i.e. foam mattress for use without mattress heater, gel mattress for use with matress heater (Babytherm 8010 only).

WARNING !

To minimize the tendency of a mattress to slip at maximum tilt, do not use sheets that would cover mattress fully from the underside.
Use Dräger fitted mattress cover sheet (2M 21 272)

WARNING !

When preparing accessories for oxygen therapy, observe all precautions against fire hazards from oxygen as described in "Operation", page 56.

WARNING !

Use of the radiant warmer can cause an unnoticed increase in the infant's water loss.

WARNING !

Monitor oxygen concentration at all times during oxygen therapy with an independent oxygen analyzer and take the necessary precautions against the physiological risk associated with the administration of oxygen, see "Operation", page 56.

CAUTION !
Always verify that monitor shelves and other accessories are securely attached.

Always observe the following load limits per shelf:
max. **20 kg (44 lbs)**,
total load on both poles: max. **30 kg (66 lbs).**
For items attached to pole on swivel shelves, do not exceed load of **5 kg** on that pole.

CAUTION !
Do not use the x-ray tray in the extended position to write on.
Do not place objects other than x-ray plate on tray.
Do not lean on the tray. Risk of damage.

Precautions during operation

WARNING !

Never leave infant unattended when surrounding panels are down. Risk of patient injury! Infant may fall out of the bassinet.

WARNING !

When operating surrounding panels, take care not to pinch patient body parts, circuits, or other items, such as bedding sheets.

WARNING !

Side panels must be securely locked in position and the panel hardware must be visible above the surface of the bed.
Inner panels must be used with all patients, regardless of whether the side panels are open or closed.
With lively and/or older infants, 230 mm (9 inch) high side panels should be used.

WARNING !

Continuous or intermittent audible alarms require immediate operator attention to avert or to prevent development of situations with the possibility of patient injury.

WARNING !

All accessories used must comply with national safety standards for electromedical equipment used in patient rooms (e.g. IEC/EN 60601.1).

WARNING !

Infant Temperature Monitoring

Check infant temperature and skin condition at regular intervals as prescribed by hospital protocol and adjust temperature setting to individual patient needs.

Infant temperature must be closely monitored during phototherapy or while the radiant heater is used in conjunction with mattress heater.

Watch out for exposure to sunlight.

WARNING !

Mattress Heater
(Babytherm 8010 only)

When mattress heating is used, the gel mattress must be placed directly on the heated tray surface.

Do not use Dräger gel mattress (part no. 2M 20 827) in any bassinets other than the Babytherm 8010. Use of a gel mattress with unheated bassinets will result in uncontrolled cooling of infant.
Do not use a foam mattress with Babytherm 8010.
Heater plate temperatures above 40 °C (104 °F) implicate the danger of patient burns when Babytherm 8010 is operated without the specified gel mattress.

Always take into account warm-up time of the mattress. Wait approximately 1 hour before placing an infant in the bassinet.

Do not switch off Babytherm while an infant is lying on the gel mattress as this will result in uncontrolled cooling of infant.

WARNING !

Do not touch top of radiant warmer or protective screen. Danger of burn injuries!

WARNING !

Do not place any objects on top of the radiant warmer. Impeding ventilation may create a fire hazard!

WARNING !

When operating the radiant warmer while the bed is tilted, closely monitor parts of the infant's body that are closer to the heater. They will receive more heat.

WARNING !

Do not use flammable cleaning agents or medications while radiant heater is in operation.
Fire hazard!

WARNING !

Do not put any medications or infusion solutions in the heated area.

WARNING !

Always check infant temperature at least at the intervals of the timed alarm when using radiant warmer in manual mode.

WARNING !

Do not use skin temperature control for infants in a state of shock!
Skin temperature of these infants is much lower than normal. Infants would be overheated using the automatic skin temperature control. For infants in a state of shock, set heater output to »man.« and measure infant temperature every 15 minutes.

WARNING !

Do not use skin temperature control for infants with a fever. Their skin temperature is significantly higher than normal. Using automatic skin temperature control would lead to hypothermia. For infants with a high temperature, set heater output to »man.« and measure infant temperature every 15 minutes.

WARNING !

Always use eye protection for the infant when using phototherapy. Check regularly that the eye protection is correctly positioned.

WARNING !

Always consider all aspects of an infant's diffferentiated diagnosis to ensure that no life-saving measures are delayed.
Regularly measure the patient's bilirubin level. Beware of possible toxic effects of bilirubin photoisomers.

WARNING !

Always operate phototherapy lights in combination with radiant warmer. Otherwise risk of hypothermia for the undressed infant can occur.
Infant temperature must be closely monitored during phototherapy because of the additional transfer of heat to the infant.
Do not use reflective foil to boost the effect of phototherapy. A dangerous rise of the infant temperature can occur when using reflective foil.

WARNING !

Phototherapy can upset the the patient's water balance. During phototherapy, the supply of fluids to the infant must be increased, e.g. by parenteral infusion, to compensate for the increased water loss.

WARNING !

Direct eye contact with the radiation source for an extended period of time should be avoided when in use. Protect patients in the immediate vicinity of the phototherapy device from the radiation emitted, e.g. by using goggles and shields.
Users should avoid remaining in the area of irradiation for extended periods due to the risk of sunburn.

WARNING !

Fire Hazards from oxygen!
- **Open flames or cigarettes!**
- **Textiles, plastics, and oils readily ignite in an oxygen enriched atmosphere and burn with great intensity.**
- **Keep oxygen valves, connections, and seals free from oil and grease.**
- **Open valves slowly.**
- **Do not operate Babytherm in the presence of flammable anesthetics or disinfectants.**
- **Do not use or store flammable liquids such as alcohol, ether, or acetone inside the Babytherm bassinet.**
- **Do not use electrical equipment inside canopy with the exception of devices approved for use in explosive environments.**

WARNING !

Physiological risks of oxygen!
- **Oxygen therapy only on the order of a physician.**
- **Elevated oxygen concentrations must be selected on the basis of arterially measured oxygen partial pressure in the infant's blood. Otherwise risk of hyperoxemia (eye injuries with consequential blindness) or hypoxemia (brain injuries) can occur.**
- **Monitor oxygen concentration at all times during oxygen therapy using an independent oxygen analyzer.**

WARNING !

Always monitor closely infant temperature when bed canopy is in use.

WARNING !

Never leave Babytherm unattended with the side panels open. Risk of patient injury can occur! Infant may fall out of the bassinet.

WARNING !

Do not perform any infant care or therapy while configuring the system, because normal equipment functions (e.g. temperature measurement, alarms) are disabled.

WARNING !

Always verify that sensor probe is specified and approved for use with Dräger Babytherm 8004/8010.

WARNING !

Do not place sensor probe underneath the infant.
The measured value for skin temperature would become distorted by the mattress.

WARNING !

Never use skin temperature probes for rectally measuring infant temperature.
Specifically, never use skin temperature probe rectally for skin temperature control as this would measure and use core instead of skin temperature for control.

WARNING !

When using skin temperature control mode, check infant skin condition at regular intervals as prescribed by hospital protocol and verify that skin temperature probe is securely attached. A detached probe will measure air temperature and the baby might become overheated.

WARNING !

Always warm up mattress before placing infant.
Do not switch off Babytherm while a baby is lying on the gel mattress. Risk of hypothermia.

WARNING !

Check infant temperature at regular intervals as prescribed by hospital protocol and adjust temperature setting to individual patient needs.

WARNING !

Do not use a gel mattress with Babytherm 8004.
The unheated gel mattress would cool the infant.
Risk of hypothermia can occur!

WARNING !

Always consider all aspects of an infant's diffferentiated diagnosis to ensure that no life-saving measures are delayed.

Regularly measure the patient's bilirubin level.

WARNING !

During phototherapy, the supply of fluids to the infant must be increased, e.g. by parenteral infusion,
to compensate for the increased water loss.

WARNING !

Never leave infant unattended while radiant warmer is in operation.
Measure infant temperature at regular intervals as prescribed by hospital protocol.

CAUTION !

Keep gel mattress clear of sharp objects. Risk of damage can occur!
Do not fold or kink gel mattress. Roll up for transport.

CAUTION !

Do not place any objects above or underneath bassinet where they might be damaged when height adjustments are made.

CAUTION !

Always use cables with sufficient length for secure connection at minimum and maximum height.

CAUTION !

Always observe the load limit of 50 kg (110 lbs) when electric height adjustment option is installed.

CAUTION !

Do not use the x-ray tray in the extended position to write on.
Do not place objects other than x-ray plate.
Do not lean on the tray. Risk of damage.

CAUTION !
When using external phototherapy devices, keep in mind that the maximum load on the bed canopy is11 kg (24 lbs).

Precautions during equipment care

WARNING !

Always follow accepted hospital procedures for handling equipment contaminated with body fluids.

WARNING !

Always disconnect power supply before cleaning and disinfecting.

CAUTION !
Do not fold gel mattress.

CAUTION !
Certain components of the bassinet consist of materials that are sensitive to certain organic solvents sometimes used for cleaning and disinfecting (e.g., alcohols, phenols, halogen releasing compounds, oxygen releasing compounds, strong organic acids, etc.). Exposure to such substances may cause damage that is not always immediately recognized.
Sterilization of the bassinet itself with ethylene oxide (EtO) is also not recommended.

CAUTION !
Do not expose Babytherm 8004/8010 to high levels of ultraviolet radiation. This may cause cracks in the acrylic glass components.

CAUTION !
Only use detergents/disinfectants with a ph value of 7 to 9 for phototherapy lenses.

Precautions during maintenance

WARNING !

To avoid any risk of infection, clean and disinfect bassinet and accessories before any maintenance according to established hospital procedures – this applies also when returning units or parts for repair.

WARNING !

Maintenance work on the Babytherm 8004/8010 may be performed by trained and factory authorized staff only.

WARNING !

Always disconnect power supply before servicing.

WARNING !

Never operate the infant warmer system if it has suffered physical damage or does not seem to operate properly. We recommend that you contact DrägerService for maintenance service of the Babytherm 8004/8010.

WARNING !

When servicing the device, always use replacement parts that are qualified to Dräger standards.
Dräger cannot warrant or endorse the safe performance of third party replacement parts for use with Babytherm infant warmers.

CAUTION !
Maintenance
The device must be inspected and serviced at regular intervals. A record must be kept on this preventive maintenance. We recommend obtaining a service contract with DrägerService through your vendor.
For repairs of the device we recommend that you contact DrägerService.

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Intended Use

WARNING !

Babytherm 8004/8010 must only be used by properly trained clinical and nursing staff under the supervision of a qualified physician familiar with the currently known risks and benefits of using an infant warmer.

Applications

Babytherm 8004/8010 is an open care infant warmer system for warming premature babies, neonates and infants with a body weight of up to 8 kg (17.6 lbs).

The device is intended for use in delivery rooms, operating rooms, maternity and obstetric units, neonatal and pediatric wards, neonatal and pediatric intensive care units.

Therapy and nursing uses
- As resuscitation table and in birthing rooms, obstetric units, and NICUs
- As infant warmer bassinet during normal and intensive care
- For infant re-warming and compensation of heat loss
- For thermal stabilizing of infants with mattress heater (Babytherm 8010 only)
- For gentle warming therapy using the combination of radiant and mattress heater
- Cooling infants with fever (temperature of mattress below infant body temperature, Babytherm 8010 only)
- With adjustable bed tilt for treatment of infants in Trendelenburg and reverse Trendelenburg position
- For weaning infants from incubators
- For O_2 and nebulizer therapy (with appropriate accessories)
- For lowering an infant's bilirubin levels when using the phototherapy option

Babytherm 8004 heating features
- Radiant warmer operation with a preset warmer output: Radiant warmer output is set in manual mode, and therapy time at higher warmer output levels is monitored with a timed alarm.
- Radiant warmer operation with infant temperature control ("baby control mode"): Infant skin temperature is automatically monitored and controlled.

Babytherm 8010 heating features
- Radiant warmer operation with a preset warmer output: The radiant warmer output is set in manual mode, and therapy time at the higher warmer output levels is monitored.
- Radiant warmer operation with skin temperature control (baby control mode): Skin temperature is automatically monitored and controlled.
- Heated gel mattress, operating independently of the radiant warmer:
  Temperature of the heating pads is automatically monitored and adjusted to attain and maintain a preselected temperature at the contact surface between infant and mattress.

Options
- Height adjustment
- One or two swivel cabinets
- Side panels (150 mm or 230 mm, (5.9 or 9.1 inches))
- IV-pole
- Phototherapy
- Bed canopy
- Swivel tray
- RS 232 interface

Frequently used third party accessories
- Bronchial aspirator
- O_2 flowmeter
- O_2 distributor
- O_2 distributor with cylinder connection
- O_2 analyzer
- O_2 hood

WARNING !

Dräger cannot warrant or endorse the safe performance of third party accessories for use with the Babytherm 8004/8010 infant warmer system.
Only use accessories that meet the required specifications for an intended use in an oxygen enriched environment.

Restrictions of Use

CAUTION !
Restriction of Distribution

Federal Law and Regulations in the United States and Canada restrict this device to sale by or on the order of a physician.
This device is for use only in health care facilities and only by persons with specific training and experience in the use of the device.

WARNING !

This device is to be used only in rooms with properly grounded 3-wire hospital grade outlets complying with national safety standards for hospital patient rooms (e.g., IEC/EN 60601.1, "Safety of Medical Equipment"). To maintain grounding integrity, connect only to a "hospital grade" receptacle. Always disconnect supply before servicing.

WARNING !

DANGER! risk of explosion exists if this device is used in the presence of flammable anesthetics. This device is neither approved nor certified for use in areas where combustible or explosive gas mixtures are likely.

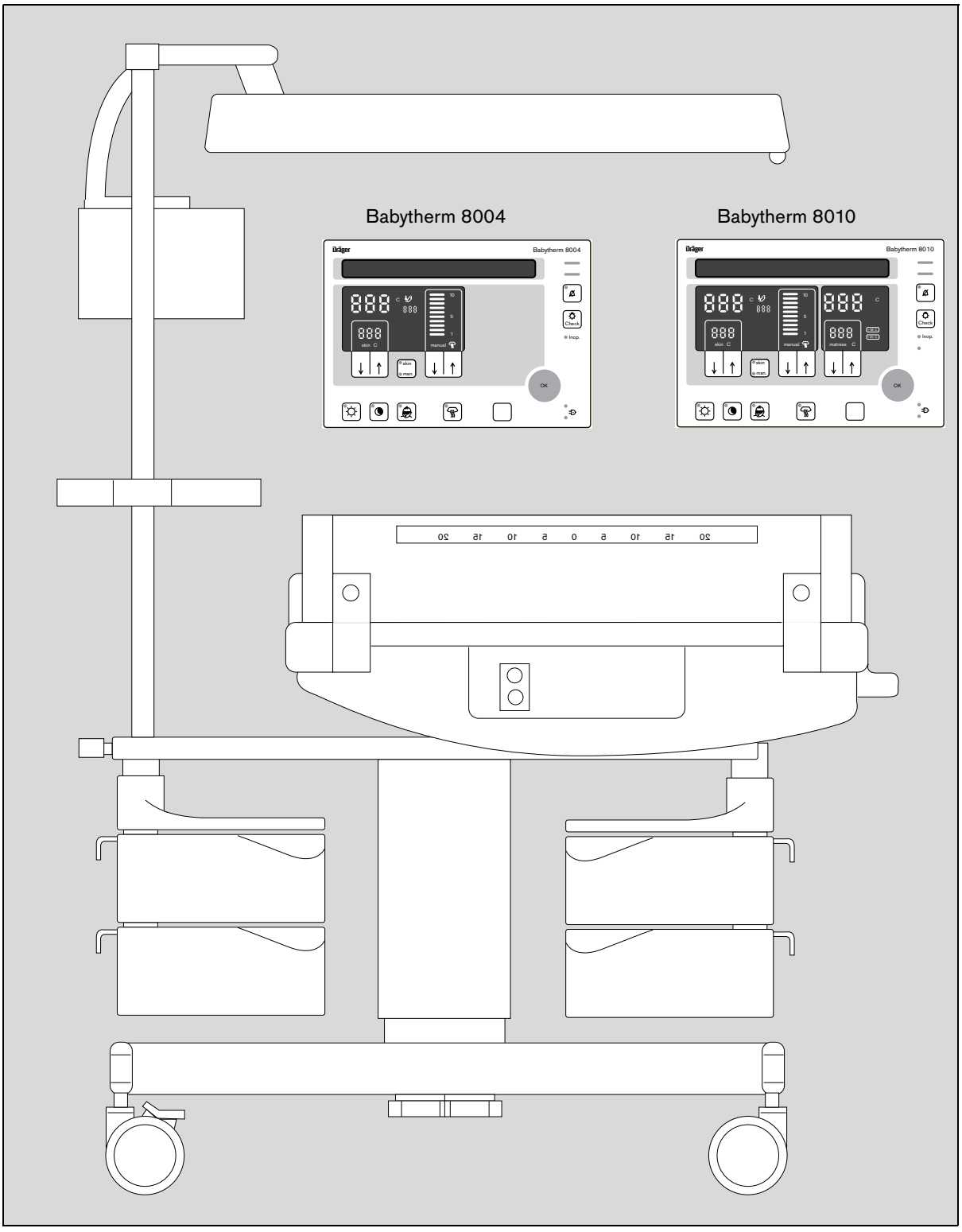
WARNING !

Do not use mobile phones within 33 feet (10 m) of the device.
Mobile phones can cause interference to electrical and electronic medical devices, therefore placing patients at risk.*

* Dräger medical devices comply with the interference immunity requirements of the specific standards for the products or EN 60601-1-2 (IEC 60601-1-2). However, depending on the design of the mobile phone and situation of use, field strengths may occur in the immediate environment of a mobile phone that exceed the limits of the standards quoted and therefore cause interference.

Theory of Operation

Overview



Description of System Components

Babytherm consists of:
- a mobile chassis with infant bassinet
- a control unit with operating panel
- a radiant heater
- a heated gel mattress (Babytherm 8010 only)

Control unit
The control unit is located below the radiant warmer and between the two support poles at the head end of the bed. The control panel contains a membrane keypad and integral alphanumeric display (2 x 40 characters) providing user guidance for easier operation.

Radiant warmer
The radiant warmer combines two infrared ceramic heaters and two examination lights for illuminating the bed surface.

The bed surface lighting can be adjusted as a examination light and for night lighting. The well balanced color spectrum of the lamps facilitates recognition of diagnostically significant skin color nuances.

The radiant warmer can be operated in manual control or skin temperature control mode. In manual mode, fixed warmer output levels of 1 to 10 are set.

In "skin temperature control" mode, the patient's skin temperature is continuously adjusted towards a preselected optimum setting.
In this mode, the radiant warmer output level is automatically adjusted to the needs of the patient.

Both modes of operation are monitored by self-check routines and alarms.

ThermoMonitoring™ technique (available option)
ThermoMonitoring is made possible with a secondary skin temperature sensor. Abdominal/central and peripheral skin temperature readings (tummy-toe temperature monitoring) are displayed on the controller. They can be graphically represented using the optional interface (RS 232) and a monitor. This option improves the diagnostic capabilities of the system.

Phototherapy (available option)
Light from the halogen lamps contributes to photo-chemical breakdown of bilirubin in the skin. Dräger halogen lights are particularly effective at wavelengths around 460 nm. Phototherapy is switched on/off from the main controller operating panel.

Heated gel mattress (Babytherm 8010)
The mattress heater system consists of the following components:
gel mattress, aluminium heating plate, and controller.

The gel mattress consists of a highly heat-conductive gel that does not "run" or move even when the bed is tilted. The gel is surrounded by a film of soft skin-like material.

The mattress molds itself to the body contours of the patient laying on it, thereby providing a large contact surface that transfers warmth to the patient and avoids pressure points. When the gel mattress is cold, warmth is transferred from the patient to the mattress.

The gel has good heat storage properties. If the AC power supply is interrupted, e.g. during in-hospital transport, the patient will be kept warm for about 15 minutes, provided that insulation is sufficient (blanket, bed canopy).

The heating system consists of a thick aluminium plate and a heating element below the plate. This system ensures that heat is distributed evenly over the entire bed surface.

The control and display panel for the heated gel mattress is located on the right-hand side of the controller.

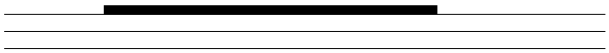
Mattress temperature is adjusted with reference to a temperature setpoint entered by the user. The set temperature is only reached in areas where the patient is in contact with the mattress.
System monitoring includes self-check routines and alarms.

Configuration modes
Configuration modes are special operational modes of the Babytherm 8004/8010 controller. In these modes, information regarding the current software version and error log can be checked. The device can also be configured with user specific settings for skin temperature alarm threshold, volume of audible alarms, as well as language and display contrast.
A configuration mode can also test the built-in nurse call and keys of the operating panel.

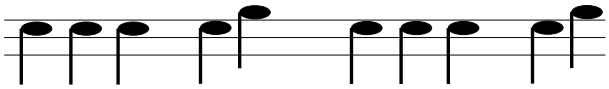
Alarm System

The Babytherm controller distinguishes three alarm levels.

Warning (high potential risk)
Continuous audible alarm that cannot be silenced in case of:
— device failure
— power failure



Alarm tone sequence that may be silenced in combination with a blinking red LED for:
— mattress heater sensor failure
— mattress heater exceeding temperature limits
— skin temperature sensor not connected while operating in skin temperature control mode
— failure of a skin temperature sensor
— skin temperature above 39 °C (102.2 °F)



Caution (medium potential risk)
Alarm tone sequence (may be silenced) in combination with a blinking yellow LED for:
— deviation between setpoint and measured value of skin or mattress temperature exceeding tolerance
— 15-minute alarm (as a reminder to check core temperature at least every 15 minutes with heater levels higher than 4, during manual mode)

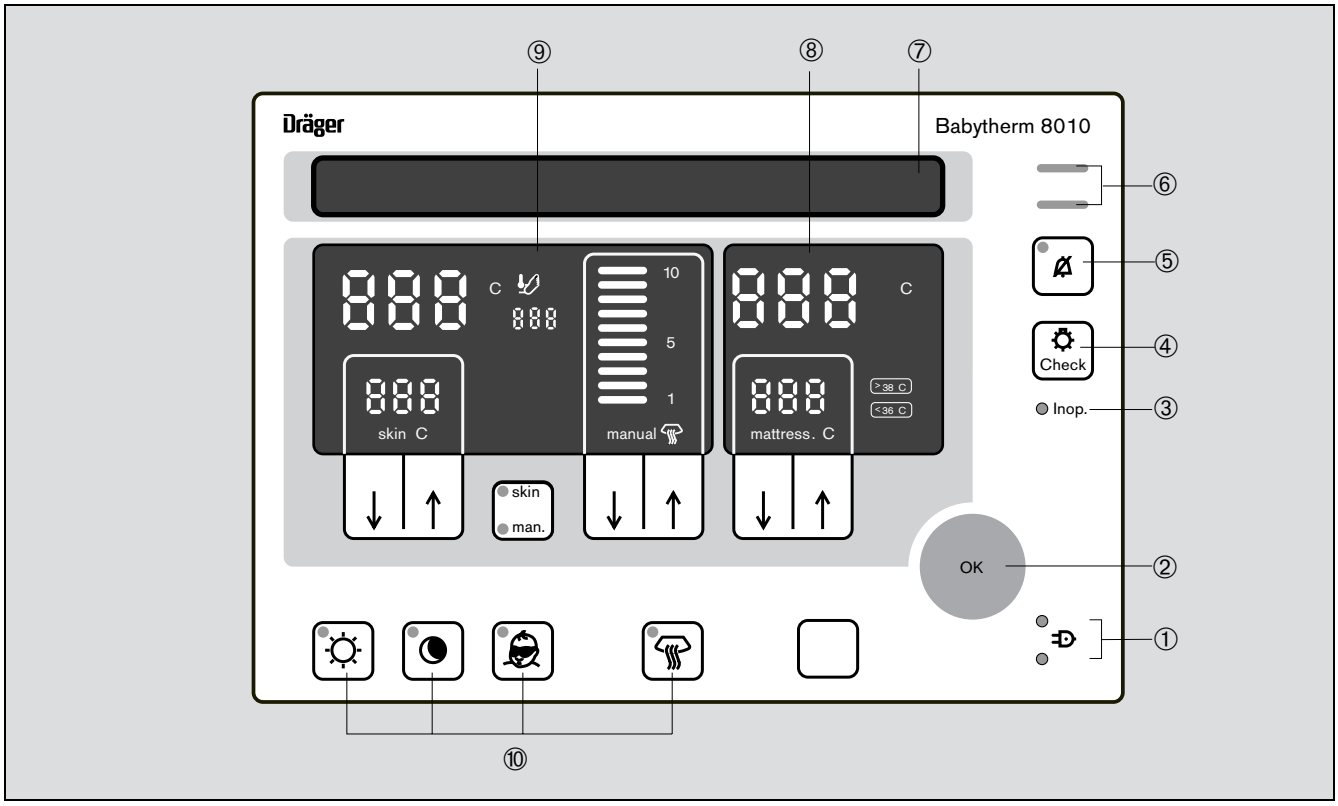
Message (low potential risk)
Display messages for:
— measured values out of measuring range
— low battery voltage

Any alarm that has not been acknowledged is indicated by the flashing red central alarm light on the radiant heater unit.

The alphanumeric display shows a specific message for the active alarm.

NOTE: A new alarm being activated will always override audible alarm silencing.

Operating Concept



① ON/OFF indicator:
The green LED is lit when the unit is ON.
The red LED is lit following a power failure.

② **OK** button confirms advisory messages and settings.
If the **OK** button is not pressed within 10 seconds of entering a new setting, the previous settings remain active.

③ **Inop** alarm display.

④ Button for checking the LEDs, displays, enunciator, and audible alarm.

⑤ Button for silencing audible alarms.

⑥ Visual display for alarms:
Warning = red LED. Caution = yellow LED.

⑦ Text display: shows advisory messages for the user.

⑧ Babytherm 8010 only – display and keypad for the heated gel mattress:
top: display for the measured mattress temperature.
bottom: display for the set mattress temperature, with buttons for setting the desired temperature.
right: indicators for operation in extended setting range – high (> 38 °C / 100.4 °F) or low (< 36 °C / 96.8 °F).

⑨ Display and keypad for the radiant warmer:
top: display for the measured value of the core and peripheral skin temperature.
bottom: display for the set skin temperature with buttons for setting the desired value and a toggle button for selecting "man." (manual control mode) or "skin" (skin temperature control) mode.
The active mode is indicated by the relevant yellow LED.
right: display of heater output levels 1 to 10, for manual operation of the radiant warmer.
Heater levels 1 to 3 = green LEDs
Heater levels 4 to 10 = yellow LEDs
buttons for selecting the desired increment.

⑩ On/Off buttons for:
Examination light
Night light
Phototherapy (available option)
Radiant warmer
Each of these buttons has a yellow LED that is lit when the respective function is switched on.

Preparation

Preparing Pole Accessories

Monitor Shelf

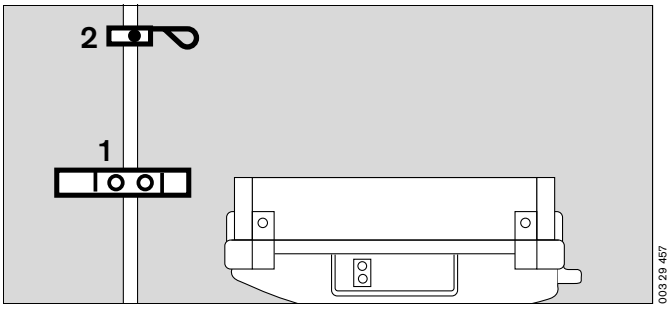
Babytherm comes equipped with one monitor shelf.

Mounting rail elements (available option) for monitor shelf:

1 Screw rail element to left and/or right of monitor shelf

- Place desired auxiliary equipment on the rails and shelf. Max. 20 kg per shelf.

2 Fasten infusion holder bracket (2M 21 514) to one of the poles at a convenient height.



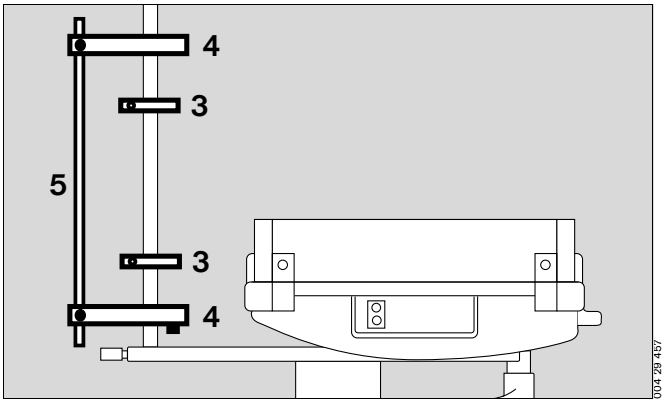
IV pump support/rail brackets

These rail accessories are designed to support smaller auxiliary equipment, e.g. O_2 flowmeter, O_2 analyzer, infusion pumps.

3 Attach compact rail brackets (2M 85 337) to one of the poles at a convenient height.

4 Attach rail bracket (G13 821 or G 13 822) and

5 IV-pole (G 13 823 or G 13 831) through holes in rail brackets at the required height.



CAUTION !

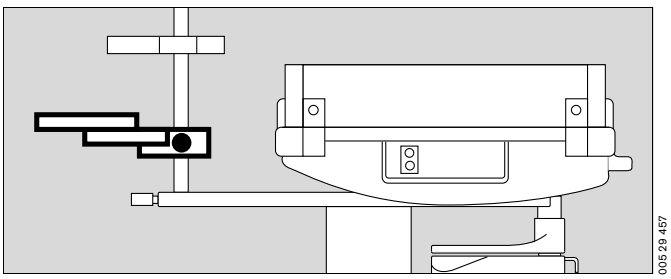
Always verify that monitor shelves and other accessories are securely attached.

Always observe the following load limits per shelf:
max. **20 kg (44 lbs)**.
total load on both poles: max. **30 kg (66 lbs).**
For items attached to pole on swivel shelves, do not exceed load of **5 kg (11 lbs)** on that pole.

Swivel tray

For small items or parts, maximum load capacity 3 kg (6.5 lbs).

- Position the swivel tray on one of the poles of the stand and tighten the hand screw.
  Recommended height: level with the mattress.



WARNING !

Stability

To ensure continued protection against tipping over, do not place unit on a slope of more than 10°.
Always observe load restrictions on individual shelves/ poles as well as maximum combined load capacities (see CAUTION above).

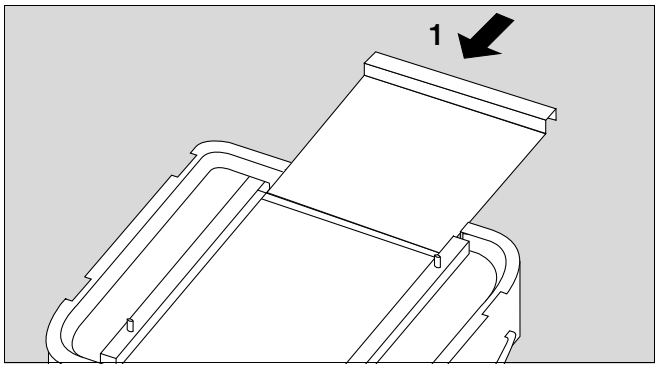
X-ray Tray

Babytherm 8004 only

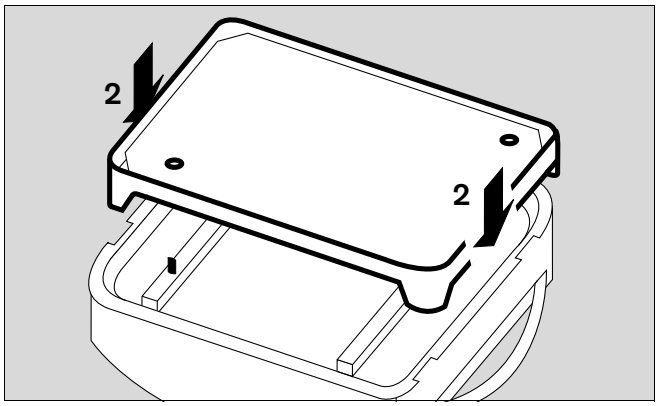
CAUTION !
Do not use the x-ray tray in the extended position to write on.
Do not place objects other than x-ray plates on the tray.
Do not lean on the tray. Risk of damage.

Preparation

1 Slide x-ray tray horizontally into its home position.



2 Lower x-ray tray cover onto the bed
– pegs engage in the holes in the x-ray tray cover.



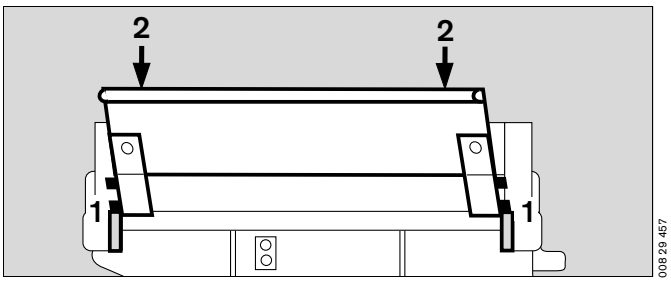
● Prepare the bed, see page 22.

Preparing the Bed

The bed is surrounded by two side panels and two end panels, which can be opened independently of each other. End panels have cutouts with U-grommets for routing patient cables.

Installing surrounding panels

1 Insert lower mounting pins of panel hinges into the hinge guide on either side of the bassinet base.



NOTE: With the panels on the long side, ensure that the handle points outward.

- Position panel semi-upright.

2 Press panel down firmly, until pins lock into position at the bottom of the hinge guide.

- Tilt panel fully upright and let it drop into the locking position.
- Install all four panels in the same fashion.

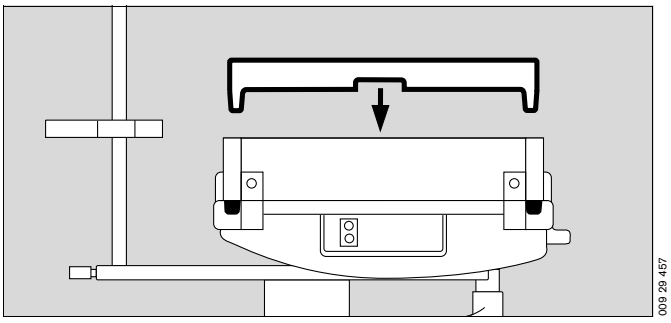
Verify that the panels are seated correctly!

To open:
- Lift panel all the way up, until upper pins on hinge brackets are out of their hinge guide, then fold panel down.

With lively infants or older children:
- Use 230 mm (9 inch) high panels.

Installing inner panels

- Insert pins into tapered holes in the corners of the bassinet and press down slightly, until the inside panel is firmly seated.



WARNING !

For active infants use side panels of 230 mm (9 inch) height.
Inner panels must be used with all patients, regardless of whether (outer) side panels are open or closed!
Otherwise the patient could fall out!
Supervise particularly active and older infants closely.

Verify that the panels are seated correctly!

Mattress

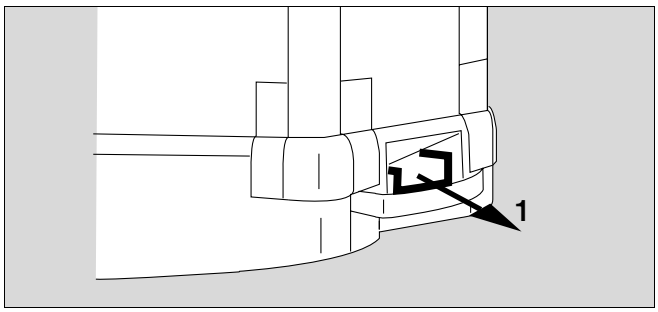
WARNING !

Always select correct mattress type for intended mode of operation, i.e. foam mattress for use without mattress heater, gel mattress for use with matress heater (Babytherm 8010 only).

- Place the mattress in bassinet and cover it with a cotton sheet.

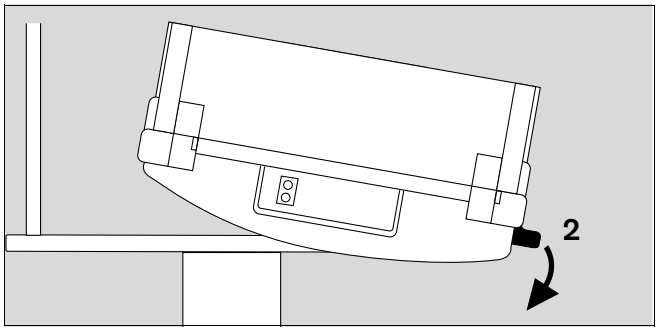
Tilting the bed

1 Pull handle of locking mechanism towards the front.



2 Press handle down for head-up (Trendelenburg) position. Pull handle up for head-down (reverse-Trendelenburg) position.

- Release locking handle: the bed automatically locks into the selected position.



The bed can be tilted in small increments.

Maximum tilt angles:
Head up (Trendelenburg) position: 20°
Head down (reverse Trendelenburg) position: 15°
Preferred positions:
Horizontal,
10° tilt head-up and
10° tilt head-down.

The mattress may slip at maximum tilt.

WARNING !

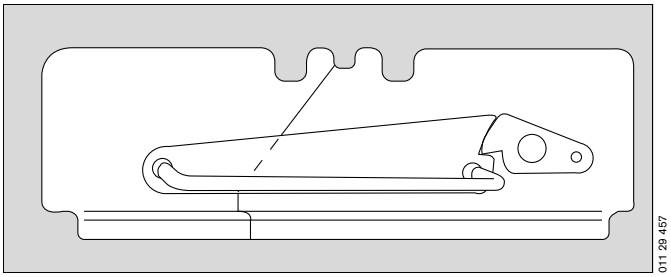
To minimize the tendency of a mattress to slip at maximum tilt, do not use sheets that would cover mattress from the underside.
Use Dräger fitted mattress cover sheet (2M 21 272).

Bed Canopy (Available Accessory)
Attaching Ventilator Circuit Support Arm
Drainage Canister Hook

Bed Canopy (Available Accessory)

Higher side panels (230 mm or 9 inches) are recommended when using the canopy.

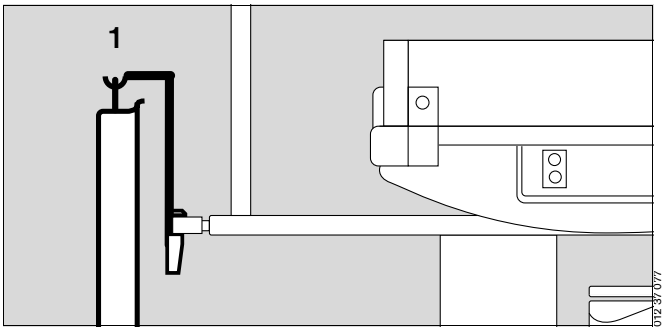
- Check that the bed canopy (2M 30 392) is closed.



When the bed canopy is not required:

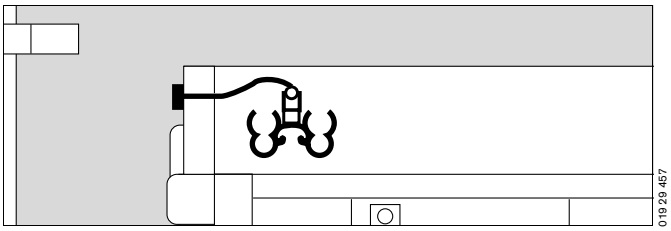
- Attach bracket (2M 21 342) to standard rail.

1 Hang bed canopy from bracket.



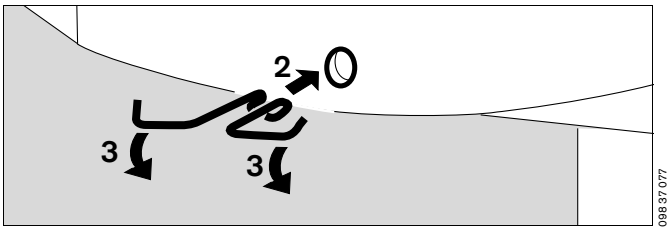
Attaching Ventilator Circuit Support Arm

- Insert flexible support arm (2M 21 191) into hole in the left side of head panel and tighten with knurled screw.



Drainage Canister Hook

2 Insert hook (2M 21 338) horizontally into the hole in the Babytherm casing.
3 Pivot hook downwards.



Accessories for Oxygen Therapy

WARNING !

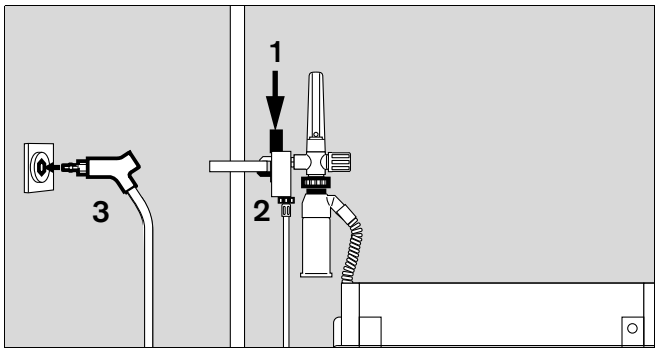
When preparing accessories for oxygen therapy, observe all precautions against fire hazards from oxygen as described in "Operation", page 56.

O_2 flowmeter

- Prepare flowmeter in accordance with its respective Instructions for Use.

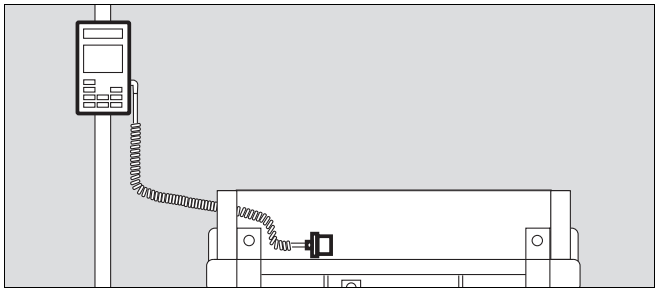
To install a flowmeter on the compact rail:

1 Mount flowmeter to the compact rail and secure.
2 Attach O_2 supply hose.
3 Connect O_2 supply hose to the O_2 wall outlet terminal.



O_2 analyzer

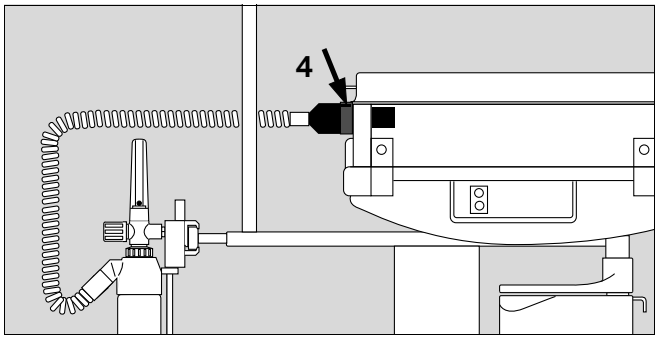
- Prepare O_2 analyzer following its respective Instructions for Use.
- Fasten analyzer, supplied with an appropriate holder or clamp, to the compact rail.
- Place O_2 sensor on the bed, and feed cable through hole in the front.
- Plug sensor connector into the measuring unit.



O_2 supply via injector (2M 14 190)

When using the injector, the higher side panels (23 cm or 9 inches) and the bed canopy should be used (see page 22 and following).

4 Press locking lever on mounting flange and push injector into flange.
- Allow locking lever on injector to engage. The injector is now locked.
- Connect the hose.



WARNING !

Monitor oxygen concentration at all times during oxygen therapy with an independent oxygen analyzer and take the necessary precautions against the physiological risk associated with the administration of oxygen, see "Operation", page 56.

Storage Supplies

Units with height adjustable column:
— One or two swivel cabinets (available option) each with 2 swivel compartments and 1 swivel tray.

Units without height adjustment:
— 2 open compartments in the column (standard),
or
— 1 swivel cabinet with 2 swivel compartments and 1 swivel tray (available option).

For clearly organized storage of necessary supplies and accessories

Preparing for Intra-Hospital Patient Transport

- Monitor the infant's core temperature.
- If height adjustment option is installed, lower the bed to lowest possible position.
- Swivel all cabinets inwards.
- Swivel all swivel trays inwards.
- Remove X-ray cartridge from X-ray tray (see page 58).
- Remove or relocate any accessories protruding sideways from the unit.
- Switch off heating systems and disconnect unit from power.
- Install canopy (available accessory) to protect infant from cold drafts.

Immediately after transport:
- Connect unit back to AC line power and switch heating systems on.

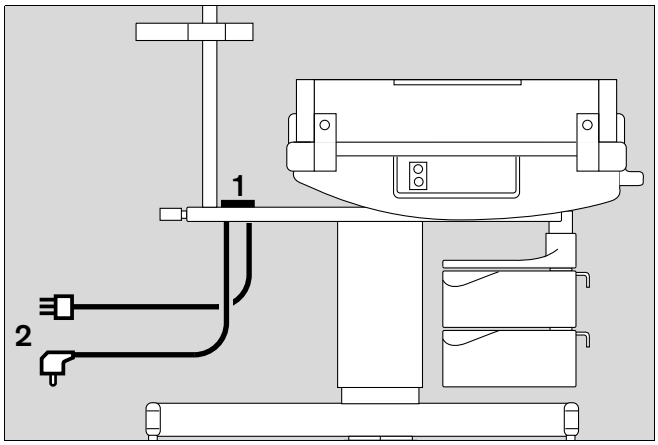
Testing Readiness for Operation

Before First Time Use

1 Verify that AC line voltage matches values indicated on the rating plate next to the power cable.
2 Connect power plugs to power outlets.

WARNING !

To maintain grounding integrity, connect only to a "hospital grade" receptacle.



Before Each Use

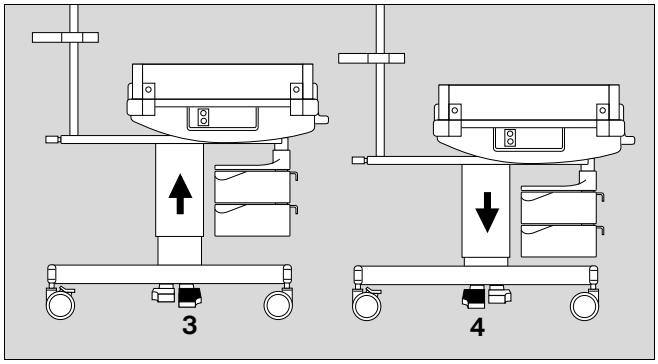
- Check that unit has been disinfected.
- Check that side panels are locked securely into place. The panel hardware must be visible above the bed surface.
- Check that side panels are free from cracks and sharp edges.
- Check that correct mattress is in the bassinet.
  Operation with mattress heater – gel mattress
  Operation without mattress heater – foam mattress
- Check that bed tilts properly and locks securely into position.
- Check that required accessories and therapy equipment are available and in proper working condition.
- Check that gas supply is available and sufficient for the accessories and equipment to be used.
- Check that cables and hoses are correctly and securely installed.
- Check that both infrared radiators are providing heat by placing your hand carefully at a safe distance from the radiant heater.

CAUTION !

Never route patient circuits, lines or cables over panels – they may become pinched when folding up panels or when installing bed canopy.

Checking height adjustment (available option)

Test height adjustment system if installed:
3 Press right pedal briefly to raise the bed.
4 Press left pedal briefly to lower the bed.



- Adjust to comfortable working height.

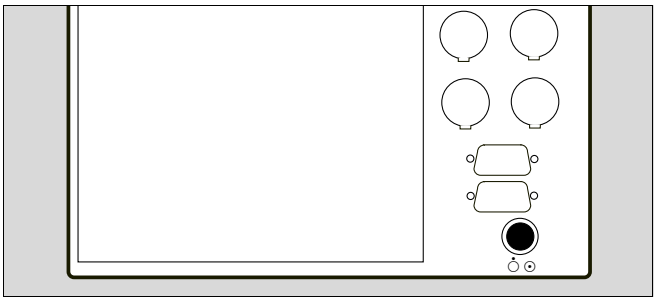
CAUTION !
Do not place any objects above or underneath bassinet where they might be damaged when height adjustments are made.

CAUTION !
Always use circuits and patient lines with sufficient length for secure connection at minimum and maximum height.

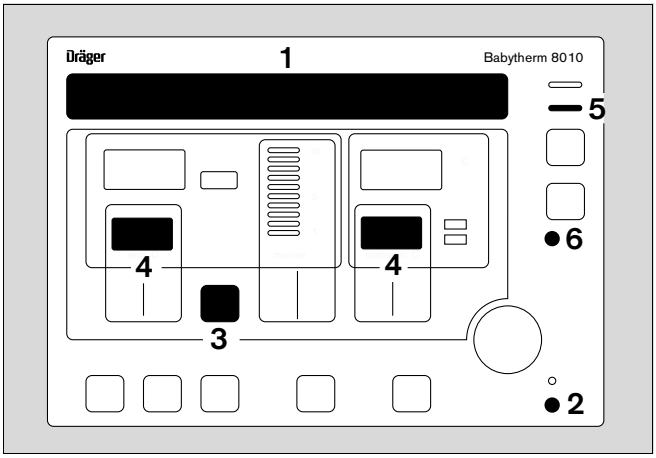
CAUTION !
Always observe the load limit of 50 kg (110 lbs) when electric height adjustment option is installed.

Switching on and activating the self-test

- Press On/Off button until it engages (ON).
- Babytherm now performs a self-test to check important functions.



1 The following message appears in the display:
»All displays on, horn on«.
All displays will be lit for about 2 seconds:
digital displays will read **88.8** and the enunciator will emit a continuous audible alarm.
1 The following message appears in the display:
»All displays off, soft alarm on«.
All displays will remain dark for about 2 seconds simultaneously with an audible alarm.
2 The green LED is lit.
3 After about 2 seconds, the unit will display the radiant warmer mode:
»Manual« – no skin temperature sensor in place
or
»Skin« – at least the yellow skin temperature sensor is connected.
The corresponding LED flashes.
4 The preconfigured set values are displayed.
1 If text display reads **»Battery charge low«**
5 and the yellow LED is lit, the battery for the power failure alarm is being charged. It takes about 30 minutes to charge the battery.
5 The yellow LED will then go out.
6 If the red **inop.** LED is lit, indicating an operating fault, see “Troubleshooting” on page 67.



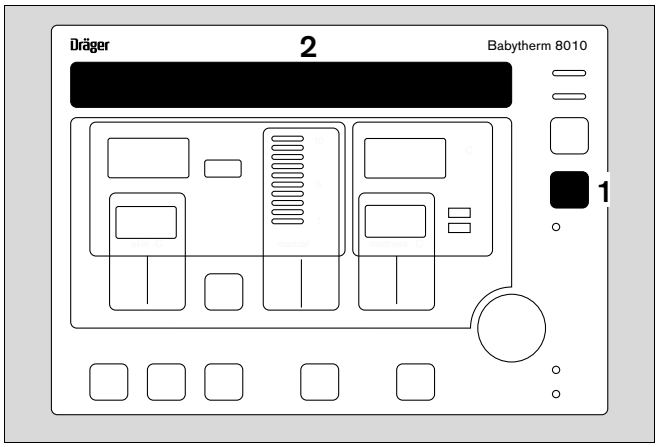
Checking LEDs, displays and audible alarm

1 Press Check key.

2 The following message appears in the display:
»All displays on, horn on«.
All the displays will be lit for about 2 seconds:
digital displays will read **88.8** simultaneously with a continuous audible alarm from the enunciator.

2 The following message appears in the display:
»All displays off, soft alarm on«.
All displays will remain dark for about 2 seconds simulataneously with an audible alarm.
This functional check may also be performed while the unit is in operation.

- Check at least once a day.



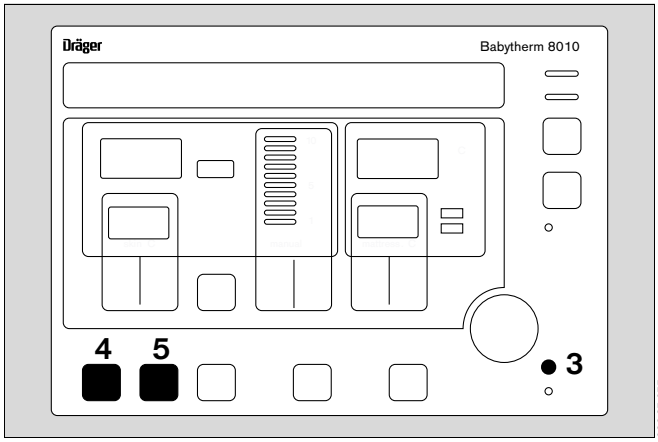
Testing power failure alarm

- Disconnect power plug.

3 The red LED should light simultaneously with a continuous audible alarm.

- Reconnect power.

NOTE: Babytherm will continue to operate with values set from **before** the power failure.



Testing lights

4 Press left-hand button. The bed should now be lit by the examination light.

4 Press button again. The examination light will be switched off.

5 Press middle button. The bed should now be lit by the night light.

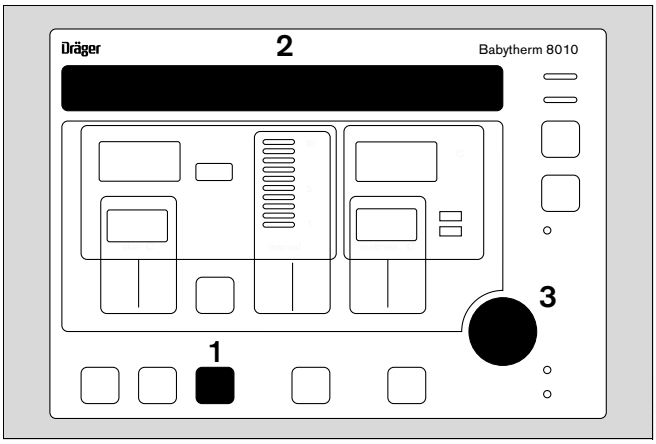
5 Press button again. The night light will be switched off.

Testing phototherapy (available option)

1 Press button. The yellow LED in the button will start to flash.

2 The following message appears in the text display:
»Phototherapy: Use eye protection
Press OK button to start XX:XX:XX«.
3 Pressing the OK button switches phototherapy lights on.
2 The following message appears in the text display for 5 seconds: :
»Duration of phototherapy XX:XX:XX«.
1 The yellow LED in the button is now continuously lit.

1 Press button.
2 The following message appears in the text display:
»Phototherapy OFF
Press OK button to confirm XX:XX:XX«.
3 Press **OK** button to switch phototherapy lights off.
1 The yellow LED in the button will go out.



Operation

Precautions During Infant Care

WARNING !

Never leave infant unattended when surrounding panels are down. Patient injury can occur. Infant may fall out of the bassinet.

WARNING !

When operating side panels or the bed canopy, take care not to pinch patient body parts, cables, or other items, such as bedding sheets.

WARNING !

Side panels must be securely locked in position and the panel hardware must be visible above the surface of the bed.
Inner panels must be used with all patients, regardless of whether the side panels are open or closed.
With lively and/or older infants, 230 mm (9 inch) high side panels should be used.

WARNING !

Continuous or intermittent audible alarms require immediate operator attention to avert or to prevent development of situations with the possibility of patient injury.

WARNING !

All accessories used must comply with national safety standards for electromedical equipment used in patient rooms (e.g. IEC/EN 60601.1).

WARNING !

Infant Temperature Monitoring

Monitor the patient's core temperature regularly using a separate thermometer and adjust temperature setting to individual patient needs. Watch out for exposure to sunlight.

It is the responsibility of the doctor to draw conclusions from the skin temperature measurements taken.

At regular intervals, check whether both infrared radiators are providing warmth by placing your hand carefully at a safe distance from the radiant heater.

Increased heat is directed to the infant when the heated gel mattress, radiant warmer, and phototherapy are operated in combination. This should to be taken into account when setting the heating systems. Follow closely instructions beginning on page 48 for setting the two heating systems both separately and in combination. Changes in ambient conditions, e.g. drafts, can affect the infant's temperature balance.

Mattress heater

WARNING !

Mattress heating

When mattress heating is used, the gel mattress must be placed directly on the heated tray surface.

Do not use Dräger gel mattress (part no. 2M 20 827) in any bassinets other than the Babytherm 8010. Use of a gel mattress with unheated bassinets will result in uncontrolled cooling of infant.
Do not use a foam mattress with Babytherm 8010.
Heater plate temperatures above 40 °C (104 °F) implicate the danger of patient burns when Babytherm 8010 is operated without the specified gel mattress.

Always take into account warm-up time of the mattress. Wait approximately 1 hour before placing an infant in the bassinet.

Do not switch off Babytherm while an infant is laying on the gel mattress as this will result in uncontrolled cooling of infant.

CAUTION !
Keep gel mattress clear of sharp objects. Damage can occur.
Do not fold or kink gel mattress. Roll up for transport.

Radiant warmer

WARNING !

Use of the radiant warmer can cause an unnoticed increase in the infant's water loss.

WARNING !

Do not touch top of radiant warmer or protective screen. Burn injuries can occur.

WARNING !

Do not place any objects on top of the radiant warmer. Impeding ventilation may create a fire hazard.

WARNING !

When operating the radiant warmer while the bed is tilted, closely monitor parts of the infant's body that are closer to the heater. They will receive more heat.

WARNING !

Do not use flammable cleaning agents or medications while radiant warmer is in operation.
This is a fire hazard.

WARNING !

Do not put any medications or infusion solutions in the heated area.

WARNING !

Always check infant temperature at least at the intervals of the timed alarm when using the radiant warmer in manual mode.

WARNING !

Do not use skin temperature control for infants in a state of shock !
Skin temperature of infants in shock is much lower than normal. Infants would be overheated using the automatic skin temperature control. For infants in a state of shock, set heater output to »man.« and measure infant temperature every 15 minutes.

WARNING !

Do not use skin temperature control for infants with a fever. Their skin temperature is significantly higher than normal. Using automatic skin temperature control would lead to hypothermia. For infants with a high temperature, set heater output to »man.« and measure infant temperature every 15 minutes.

WARNING !

Do not use the bed canopy in combination with the radiant warmer.
Higher output settings of the radiant warmer may cause surface temperatures of the canopy to rise beyond acceptable levels. Burn injuries can occur.

Phototherapy (available option)

WARNING !

Always operate phototherapy lights in combination with radiant warmer. Otherwise risk of hypothermia for the undressed infant can occur.
Infant temperature must be closely monitored during phototherapy because of the additional transfer of heat to the infant.

WARNING !

Always use eye protection for the infant when using phototherapy.

WARNING !

Check infant temperature at regular intervals as prescribed by hospital protocol.
Phototherapy increases heat transfer to the infant.
Measure infant's bilirubin level at regular intervals as prescribed by hospital protocol.

Oxygen therapy (with optional accessories)

WARNING !

Fire Hazards from oxygen!
- **Do not use open flames or cigarettes!**
- **Textiles, plastics, and oils readily ignite in an oxygen enriched atmosphere and burn with great intensity.**
- **Keep oxygen valves, connections, and seals free from oil and grease.**
- **Open valves slowly.**
- **Do not operate Babytherm in the presence of flammable anesthetics or disinfectants.**
- **Do not use or store flammable liquids such as alcohol, ether, or acetone inside the Babytherm bassinet.**
- **Do not use electrical equipment inside canopy with the exception of devices approved and certified for use in explosion hazard environments.**

WARNING !

Physiological risks of oxygen!
- **Use oxygen therapy only on the order of a physician.**
- **Elevated oxygen concentrations must be selected on the basis of arterially measured oxygen partial pressure in the infant's blood. Otherwise risk of hyperoxemia (eye injuries with consequential blindness) or hypoxemia (brain injuries).**
- **Monitor oxygen concentration at all times during oxygen therapy using an independent oxygen analyzer.**

X-ray tray

CAUTION !

Do not use the x-ray tray in the extended position to write on.
Do not place objects other than x-ray plates in the x-ray tray.
Do not lean on the tray. Risk of damage.

Remove x-ray cartridge from the x-ray tray for transport.

Bed canopy

WARNING !

Always closely monitor infant temperature when bed canopy is in use.

The effect of the radiant warmer is reduced when the bed canopy is in use.

When the bed canopy is in place, the side panels can be folded down.

WARNING !

Never leave Babytherm radiant warmer unattended with the side panels open. Risk of patient injury! Infant may fall out of the bassinet.

The bed canopy should **not** be used as a convenient place to lay objects, clothing, etc..

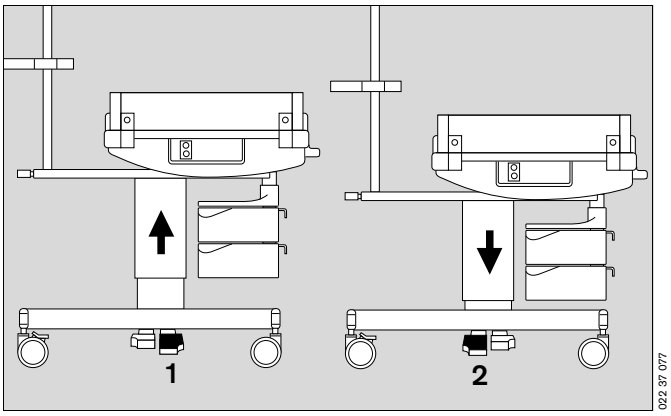
When using external phototherapy devices, keep in mind that the maximum load on the bed canopy is 11 kg (24 lbs).

Configuration mode

WARNING !

Do not perform any infant care or therapy while configuring the system, because normal operating functions (e.g. temperature measurement, alarms) are disabled.

Adjusting the Height (Available Option)



1 Briefly depress the right pedal.
The bassinet is raised.

2 Briefly depress the left pedal.
The bassinet is lowered.

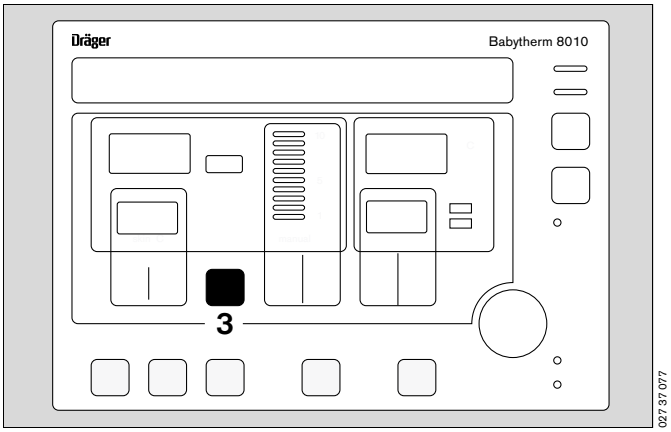
- Adjust to comfortable working height.

CAUTION !
Do not place any objects above or underneath bassinet where they might be damaged when height adjustments are made.

CAUTION !
Always use cables with sufficient length for secure connection at minimum and maximum height.

CAUTION !
Always observe the load limit of 50 kg (110 lbs) when the variable height adjustment option is installed.

Switching On



After switching on the system, it performs a self-test and then suggests the following default operating mode for the radiant warmer:

— if no skin temperature probe connected = man (manual)
— if yellow "tummy" skin temperature probe is connected = skin (skin temperature control)

3 The yellow LED for the selected mode will blink in the button.

Manual Heater Operation

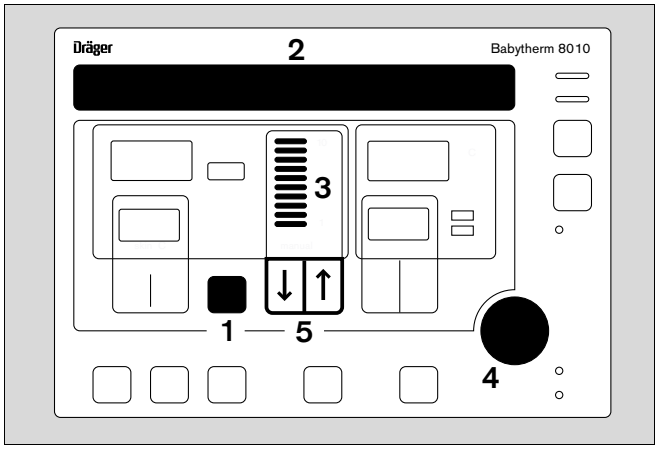
The heater is controlled manually for short-term treatment or for infants in shock and for whom skin temperature control must not be used.
In manual mode, the radiant warmer delivers a preset heat output regardless of the infant's body temperature.

WARNING !

Do not leave this device operating unattended. Measure the patient's core temperature regularly using a separate thermometer.
Measure infant temperature at regular intervals as prescribed by hospital protocol or at least at the intervals of the timed alarm.

By placing your hand carefully at a safe distance under the radiant heater, check whether both infrared heating elements are providing warmth.

If the system is still in "skin" mode:



1 Press button until yellow **man.** LED starts blinking.
2 The following message appears in the text display:
»Set radiant heater level«
»Press OK-button to cancel«
3 Babytherm will propose the most recently calculated heater output setting as the default (after switching on, the default heater level is always 3).
Each LED segment represents one heater output level:
1 to 3 = green LEDs, radiant warmer power <10 mW/cm^2
4 to 10 = yellow LEDs, radiant warmer power > 10 mW/cm^2
4 Press **OK** button = confirm heater output at proposed default level.

Or

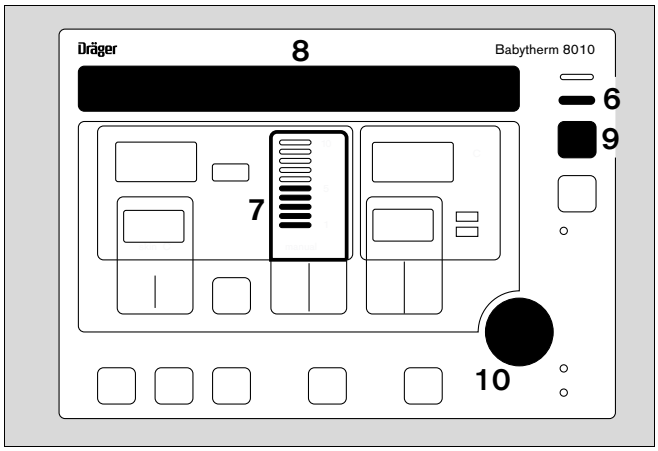
5 Press ↓ or ↑ button until the desired heater output setting is displayed.
4 Press **OK** button to confirm selected heater output level.
If the **OK** button is not pressed within 10 seconds, the message disappears and the previous setting will remain in effect.
3 New selected heater output level is displayed.
1 Yellow LED in the button is lit continuously: "man." mode is now active.

15 minute alarm

WARNING !

Always check infant temperature at least at the intervals of the timed alarm when using the radiant warmer in manual mode.

As a reminder for the required monitoring of infant temperature at higher heater output levels, an audible alarm is generated every 14 minutes at heater levels 4 and above. At the same time:



6 Yellow LED starts blinking.
– Red central alarm light on the radiant warmer starts flashing.

7 Display of set heater level starts blinking, and
8 the following message appears in the text display:
»15 min. patient temp check required
Press OK button to acknowledge alarm«
9 Press 🔔 button,
or
10 press **OK** button.

The audible alarm will stop and the yellow LED and the central alarm light will go out. The heater will remain on. The heater level display will be continuously lit.

NOTE: If there is no acknowledgement after 15 minutes (one minute from time of the message), **the heater will switch off**.

In this case:
— Audible alarm remains on,
1 yellow LED keeps blinking, and
— red central alarm light on the radiant warmer keeps flashing.

2 The display of the heating level selected will disappear and
3 the following message will appear in the text display:
»15 min. patient temp check required
Press OK button to acknowledge alarm«

4 Press button,
or
5 press **OK** button.

The heating will be switched on again.

The audible alarm will stop and both the yellow LED and the central alarm light will go out. The heater level display will be lit again.

NOTE: A skin temperature probe that might be connected simultaneously in manual mode will provide a skin temperature reading. It will, however, not control the heater output.
No reminder alarms are scheduled up to heater level 3.

Using Skin Temperature Control

In this mode of operation, the infant's skin temperature is controlled towards a setpoint using a temperature probe attached to the skin. The radiant warmer output is adjusted according to the temperature difference between the skin temperature and the desired value.

WARNING !

Do not use skin temperature control for infants in a state of shock.
Skin temperature of these infants is much lower than normal. Infants would be overheated using the automatic skin temperature control. For infants in a state of shock, set heater output to »man.« and measure infant temperature every 15 minutes.

WARNING !

Do not use skin temperature control for infants with a fever. Their skin temperature is significantly higher than normal. Using automatic skin temperature control could induce hypothermia. For infants with a high temperature, set heater output to »man.« and measure infant temperature every 15 minutes.

To set heater level manually, see page 34.

Connecting the skin temperature sensor

When using a Dräger skin temperature sensor
(order separately, see “Ordering Information” on page 80).

1 Plug the yellow sensor connector fully into the yellow connection socket.
2 Feed sensor cable through one of the flexible grommets into the bassinet.
3 Remove the protective film from the ThermoPad™ pad and place the skin temperature sensor on the pad.

- Attach sensor probe with adhesive pad to an appropriate area of infant's skin.

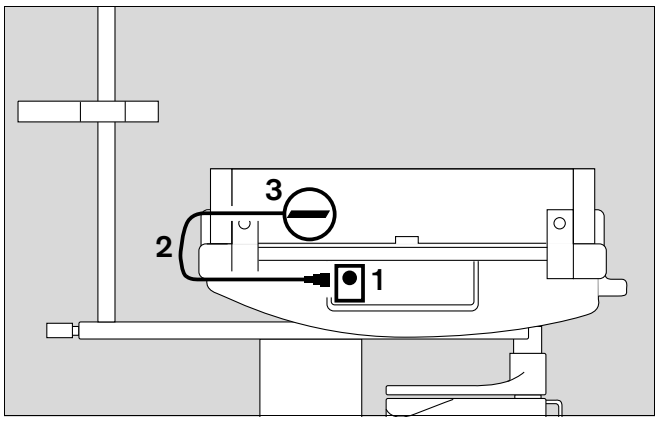
NOTE: For replacement sensor pads, see Ordering Information, page 80.

When using a third-party disposable temperature sensor:

WARNING !

Always verify that sensor probe is specified and approved for use with Dräger Babytherm 8004/8010.

- If the infant is laying on his back, place sensor on the abdomen in the liver region.
- If the infant is laying on his stomach, place sensor on the back, preferably in the kidney region.



WARNING !

Do not place the sensor probe underneath the infant. The measured value for skin temperature would become distorted by the mattress.

WARNING !

Never use skin temperature probes for rectally measuring infant temperature.

Specifically, never use skin temperature probe rectally for skin temperature control as this would measure and use core instead of skin temperature for control.

- Secure sensor cable with adhesive tape as necessary to provide strain relief.

WARNING !

When using skin temperature control mode, check infant skin condition at regular intervals as prescribed by hospital protocol and verify that skin temperature probe is securely attached.
Measure the patient's core temperature regularly using a separate thermometer.
Do not confuse the position of adhesion of the yellow skin temperature sensor with the white skin temperature sensor! Skin temperature is regulated via the yellow skin temperature sensor. An incorrectly positioned sensor can put the patient at risk of overheating!
If a skin temperature sensor becomes detached, it will measure the air temperature and the infant may be at risk of overheating.

For single use:
— **Only use approved Dräger skin temperature sensors.**
— **Only use the Dräger ThermoPad™. Using adhesive pads of other types can result in incorrect temperature measurements and therefore can affect the safety and effectiveness of the skin temperature measurement.**

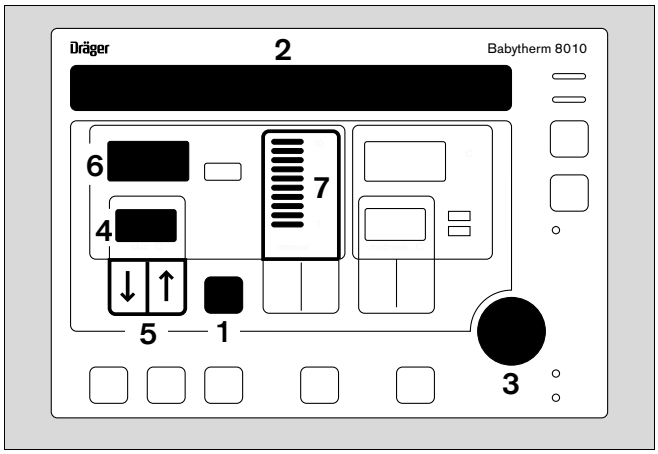
NOTE: Allow at least 5 minutes for the skin temperature probe to adjust to the infant's skin temperature.

If a skin temperature probe is connected when switching the unit on:

1 The Babytherm™ radiant warmer defaults to "skin temperature control" mode; the yellow **skin** LED in the toggle key will be blinking.
2 The following prompt appears in the display:
»Check skin temperature sensor position
Press OK button to confirm«
3 Press the **OK** button.
2 The following message appears in the text display:
»Set skin temperature
Press OK button to confirm«
4 The Babytherm™ radiant warmer defaults to a setpoint of 36.5 °C (97.7 °F) or to the most recently used setpoint, respectively.
3 Press the **OK** button to accept the proposed setpoint.

Or

5 Press ↓ or ↑ until the desired setpoint is displayed. The setpoint can be adjusted in 0.1 °C increments.
3 Press the **OK** button to confirm the setpoint.
4 The new setpoint is displayed.
1 The yellow **skin** LED lights up continuously, indicating that skin temperature control mode is active.
6 The measured skin temperature value is displayed.
7 The heater output level display changes according to current infant skin temperature and the skin temperature setpoint.



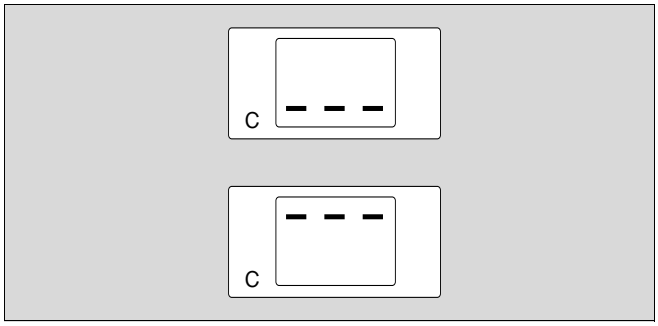
If the Babytherm™ radiant warmerm has been in "manual" mode:

- Press the mode selection key; the yellow **skin** LED will start blinking.
  The system will propose the default mode "skin temperature control." The prompts in the display should be acknowledged as above.

NOTE: Always allow time for the system to reach steady state. Deviations between setpoint for skin temperature and measured values are normally corrected within 5 to 15 min.

NOTE: An infant's skin temperature changes frequently, for instance as a result of food intake or treatment procedures. Deviations of a tenth of a degree are normal.
Therefore: Only change setpoint for skin temperature if infant temperature needs to be corrected.

By placing your hand carefully at a safe distance under the radiant heater, check whether both infrared heater elements are providing warmth.



Outside of measuring range

If temperature is outside the measuring range of 15 °C (59 °F) to 42 °C (107.6 °F):

- 3 dashes at the bottom of the display = temperature below 15 °C (59 °F),

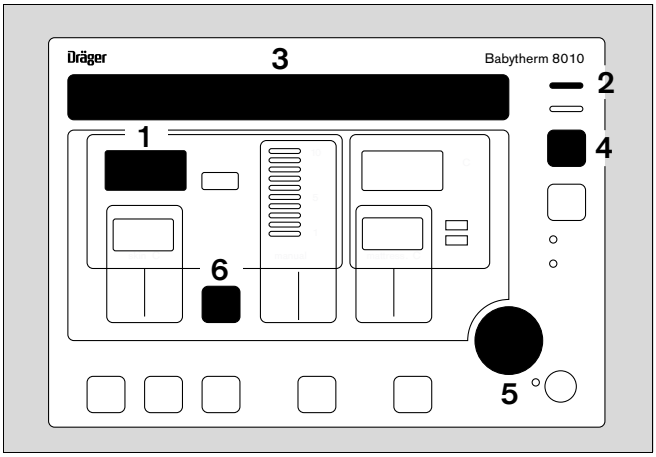
- 3 dashes at the top of the display = temperature above 42 °C (107.6 °F).
- Refer to "Troubleshooting", see page 67.

If temperature drops below 15 °C (59 °F), the message **»Skin temp. below range«** is displayed.

If temperature rises above 42 °C (107.6 °F), the message **»Skin temp. above range«** is displayed.

If the sensor probe is disconnected or the sensor is faulty:

1 Three dashes light up in the middle of the display. After 10 seconds:



— The audible alarm sounds,
2 the red LED starts blinking, and
— the red central alarm light on the radiant warmer starts flashing.

1 The three dashes on the display start blinking.
3 The display shows the message:
»Plug in skin temp. sensor
Press OK button to acknowledge«

or

»Skin temp. sensor fault
Press OK button to acknowledge«

- Immediately connect the sensor plug or change the skin temperature sensor. The audible alarm can be silenced for 15 minutes:

4 Press [🔔] button,

or

5 press the **OK** button

— The audible alarm will be silenced,
2 the red LED will go out, and
— the red central alarm light on the radiant warmer will go out.

3 The display shows the message:
»Plug in skin temp. sensor«.

Immediately connect sensor plug or change skin temperature sensor.

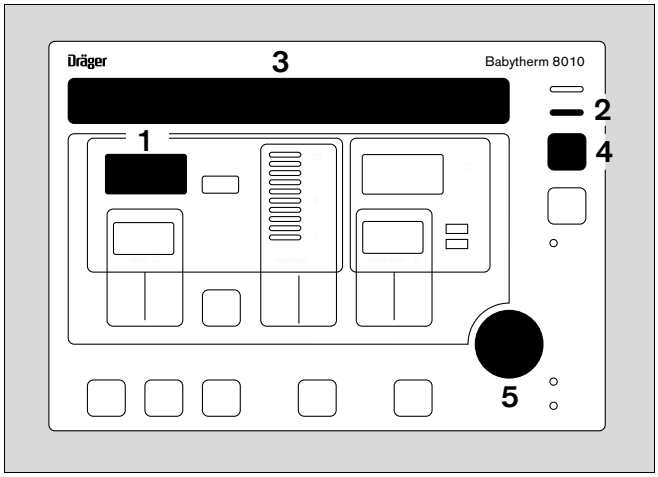
If sensor problem cannot be remedied immediately:
6 Switch to manual mode ("man."). See page 34.

For deviations greater than ±1.0 °C between set and measured skin temperature:

NOTE: The default of ±1.0 °C is used here as an example. The threshold for this alarm is configurable between 0.3 °C and 1.0 °C (see page 60).

1 The skin temperature display starts blinking.
— An audible alarm sounds,
2 the yellow LED starts blinking, and
— the red central alarm light on the radiant warmer starts flashing.

3 The following message appears in the text display:
»Skin temp. deviation above 1.0 °C
Press OK button to acknowledge«.



The alarm threshold for skin temperature deviations may be set in the configuration mode, (see page 60).
The factory set default skin temperature alarm threshold is ±1.0 °C.

The audible alarm can be silenced for 15 minutes:

4 Press [🔔] button.

or

5 press the **OK** button.

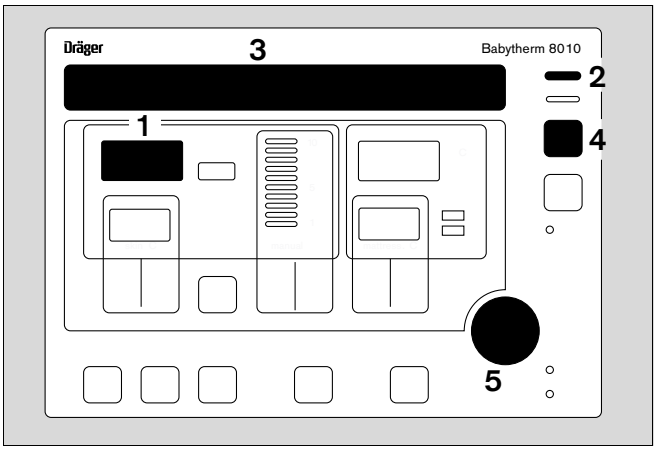
— The audible alarm is cancelled.
2 The yellow LED stays continuously lit.
— The red central alarm light on the radiant warmer goes out.

1 The skin temperature display starts blinking.
3 The following message appears in the text display:
»Skin temp. deviation above 1.0 °C«.

After measured skin temperature has returned to a value within ±1.0 °C of set temperature, the yellow LED will go out, the audible alarm will be cancelled, and the message in the display will disappear.
Before temporarily removing the skin temperature sensor from the skin, switch to the manual mode ("man."). See page 34.

Skin temperature above 39 °C (102.2 °F)

1 The skin temperature display starts blinking.



— An audible alarm sounds.
2 The red LED starts blinking.
— The red central alarm light on the radiant warmer starts flashing.

3 The following message appears in the text display: **»Skin temperature above 39 °C (102.2 °F) alarm Press the OK button to acknowledge«**.

The alarm can be muted for 2 minutes:

4 Press button,

or

5 press **OK** button.

— The audible alarm is silenced.
2 The red LED is lit continuously.
— The red central alarm light on the radiant warmer goes out.

3 The following message appears in the text display: **»Skin temperature above 39 °C (102.2 °F) alarm«**.

When operating in manual ("man.") mode, the radiant warmer is switched off:

1 The skin temperature display is lit.
2 The red LED starts blinking.

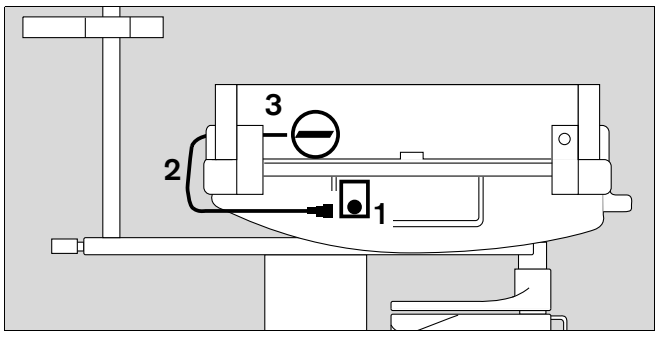
The alarm is automatically cancelled when measured skin temperature has returned to values below 38.5 °C (101.3 °F).

ThermoMonitoring™ Technique

For improved feedback on thermal condition of the infant, we recommend measuring both central and peripheral skin temperatures (tummy-toe measurement).

Connecting a peripheral skin temperature sensor

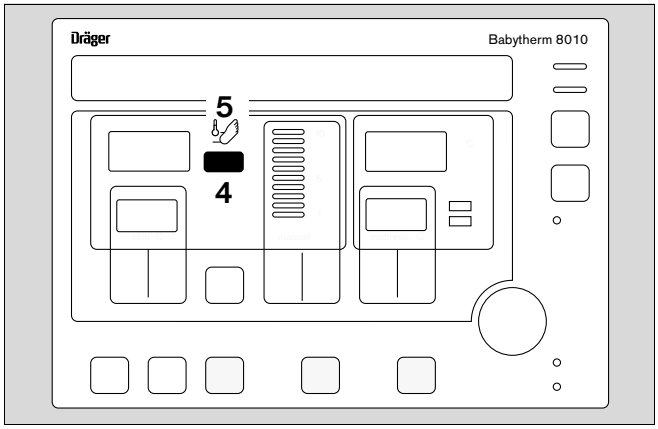
1 Plug the white sensor fully into the white socket.
2 Route sensor cable through one of the flexible grommets onto bed surface.
3 Remove protective film from adhesive pad and place sensor probe on pad.



- Attach the sensor with the ThermoPad™ to the patient's extremities, preferably the foot.
- Secure with skin compatible adhesive tape.

Displaying peripheral temperature

4 Peripheral temperature is displayed as soon as the peripheral skin temperature sensor is attached.
5 The symbol for the peripheral skin temperature lights up.



If 3 dashes appear in the display, see page 67 ("Troublehooting, Radiant Warmer").

NOTE: The measured value of peripheral temperature has no effect on radiant warmer control. Both skin temperatures can also be displayed when heater is operated in "manual" mode.

Data output via optional interface

Central and peripheral skin temperature can be displayed in graphic format.
Prerequisites:
— Interface option
— MediCable connecting cable
— Monitor compatible with MEDIBUS protocol and complying with requirements of IEC/EN 60601-1 and IEC/EN 60601-1-2.

- For installation and operation, refer to respective Instructions for Use.

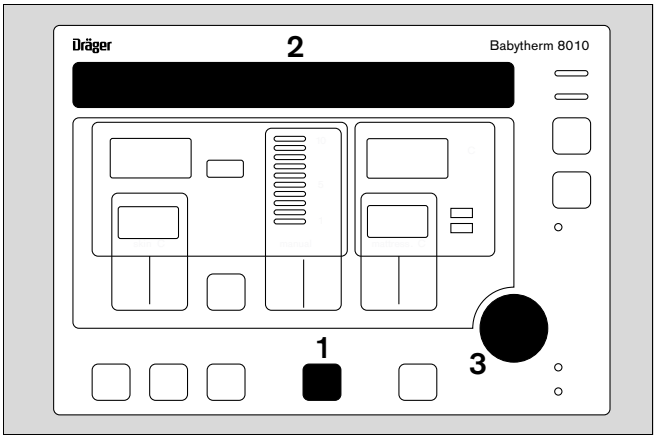
Switching Radiant Warmer Off

1 Press the button.
2 The following message appears in the text display:
»Radiant heater OFF
Press OK button to confirm«.
3 Press **OK** button.

The radiant warmer will be switched off.

2 The following message appears in the text display:
»Radiant heater turned off«.

1 Press the button again to switch radiant warmer back on, (see page 34 and following).



Using Heated Gel Mattress (Babytherm 8010)

Wait until the desired mattress temperature is reached before placing an infant in the Babytherm 8010.

WARNING !

Always warm up mattress before placing infant.
Do not switch off the Babytherm™ radiant warmer while an infant is laying on the gel mattress. Risk of hypothermia.

Setting mattress temperature

Temperature can be set in increments of 0.1 °C.
To set a temperature within the normal range of 36 °C (96.8 °F) to 38 °C (100.4 °F):

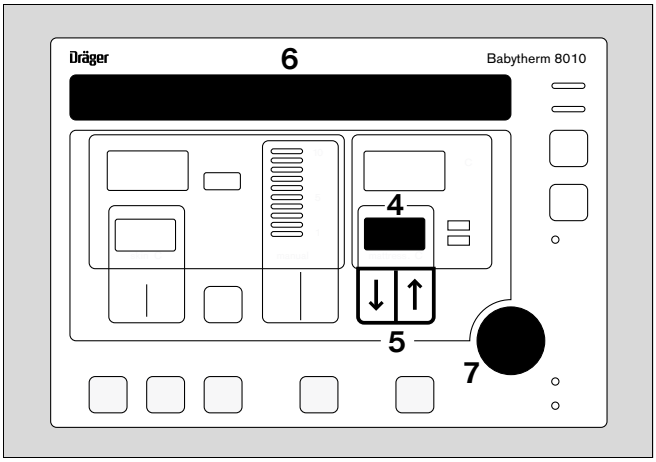
4 Display shows the current setpoint for the mattress temperature.

5 Press ↓ or ↑ button until the desired setpoint is displayed.

6 The following message appears on the display:
»Set mattress temperature
Press OK button to confirm«.

If the setpoint is not confirmed within the next 10 seconds, the message will disappear and the previous setpoint will remain in effect.

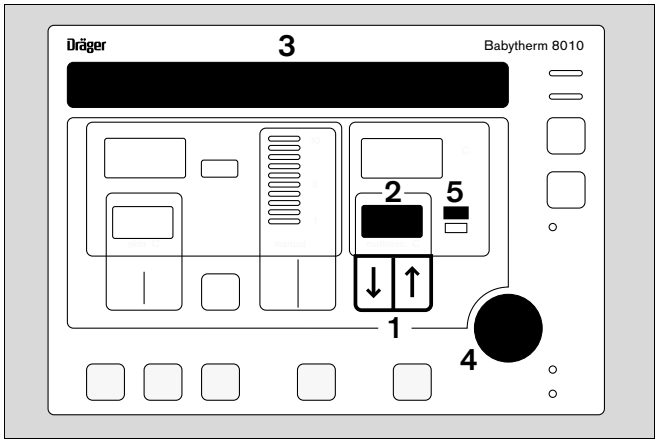
7 Press the **OK** button to confirm new setpoint.
4 The new setpoint for the mattress temperature is displayed.



Extending upper limit of setpoint range 38 °C (100.4 °F) to 38.5 °C (101.3 °F):

1 Press ↑ button until
2 setpoint of 38 °C (100.4 °F) is displayed.
3 The following message appears in the text display:
**»Mattress temperature
Confirm temp. above 38 °C with OK«**.
4 Press the **OK** button to confirm extended range.
5 The yellow **>38 °C** LED starts blinking.

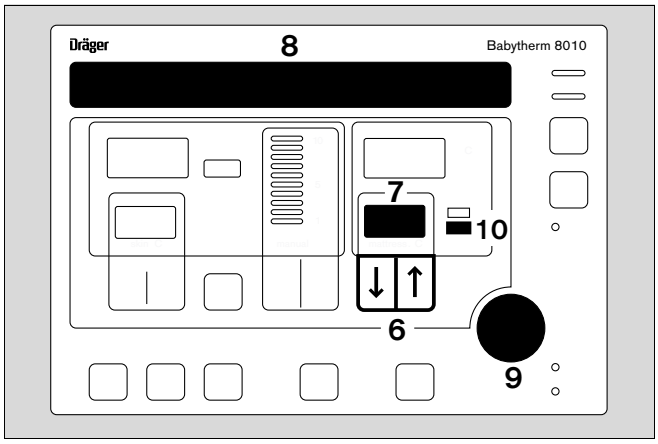
1 Press ↑ button, until the desired setpoint is showing in the display.
3 The following message appears in the text display:
**»Set mattress temperature
Press OK button to confirm«**
4 Press the **OK** button to confirm new setpoint.
2 The new mattress temperature setpoint is displayed.
5 The yellow **>38 °C** LED stays lit continuously.



Extending lower limit of setpoint range 36 °C to 30 °C:

6 Press ↓ button until the
7 setpoint of 36 °C (96.8 °F) is displayed.
8 The following message appears in the text display:
**»Set mattress temperature
Confirm temp. below 36 °C with OK«**.
9 Press the **OK** button to confirm the extended range.
10 The yellow **<36 °C** LED will become lit.

6 Press ↓ button, until the desired setpoint is showing in the display.
8 The following message appears in the text display:
**»Set mattress temperature
Press OK button to confirm«**.
9 Press the **OK** button to confirm new setpoint.
7 The new mattress temperature setpoint is displayed.
10 The yellow **<36 °C** LED stays lit continuously.

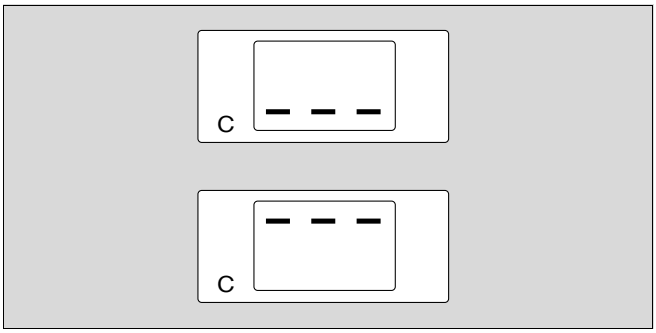


Temperature out of measuring range

If the temperature is outside the measuring range of 5 °C (41 °F) to 45 °C (113 °F):

– 3 dashes at the bottom of the display = temperature below 5 °C (41 °F)°
  The following message appears in the text display:
  »Mattress temperature below 5 °C«°
● Wait until the mattress temperature reaches 5 °C (41 °F).

– 3 dashes at the **top** of the display = temperature above 45 °C (113 °F).
● Wait until the mattress temperature falls below 45 °C.



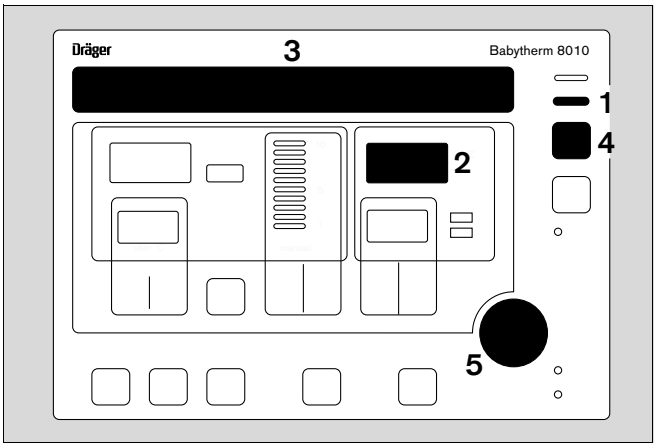
NOTE: These conditions may occur e.g. when the Babytherm™ radiant warmer had been stored in ambient conditions beyond the range of 5 to 45 °C (41 °Fto 113 °F).

Deviation from set temperature

If the deviation between set and measured mattress temperature exceeds ±1 °C:

– Audible alarm will sound,
1 yellow LED starts blinking,
– the red central alarm light on the radiant warmer starts flashing.

2 The measured value of mattress temperature starts blinking.
3 The following message appears in the text display:
  »Mattress temp. deviation above 1 °C
  Press OK button to acknowledge«.



The audible alarm can be silenced for 15 minutes:

4 Press 🔔 button,
or
5 press the **»OK«** button.

– The audible alarm is cancelled,
1 the yellow LED is lit continuously, and
– the red central alarm light on the radiant warmer is switched off.

3 The following message appears in the text display:
  »Mattress temp. deviation above 1 °C«.
2 The measured value of mattress temperature continues blinking.

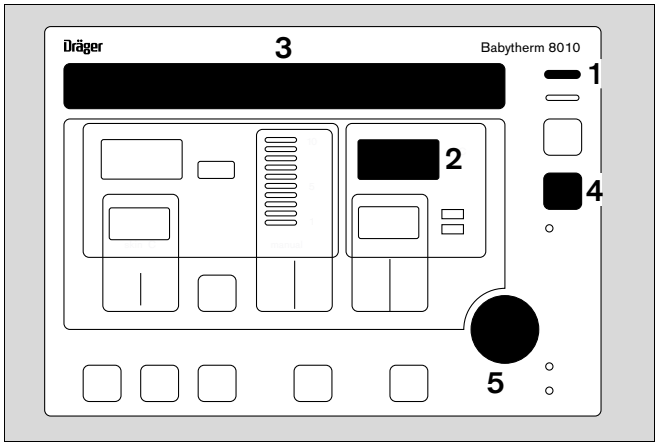
When the measured mattress temperature has returned to a value within ±1 °C of the setpoint:
1 The yellow LED will go out, and
– the audible alarm is switched off.

After initially switching on the mattress heater
– the audible alarm is silenced during warm-up.
1 The yellow LED is lit continuously.

Mattress temperature above 40 °C (104 °F)

— Audible alarm will sound,
— Red central alarm light starts flashing.

1 Red LED starts blinking.
2 Measured value of mattress temperature starts blinking.
3 The following message appears in the text display:
»Mattress temperature above 40 °C (104 °F)
Press OK button to acknowledge«.



The alarm can be suppressed for 10 minutes.

4 Press button,
or
5 press the **OK** button.

1 The red LED continues to blink, while
— the red central alarm light on the radiant warmer is switched off.
3 The following message appears in the text display:
»Mattress temperature above 40 °C«.

NOTE: The alarm is cancelled automatically as soon as the mattress heater temperature drops below 39 °C (102.2 °F).

Notes on Heater Settings

Below are notes on settings for use of the mattress heater with and without radiant warmer.

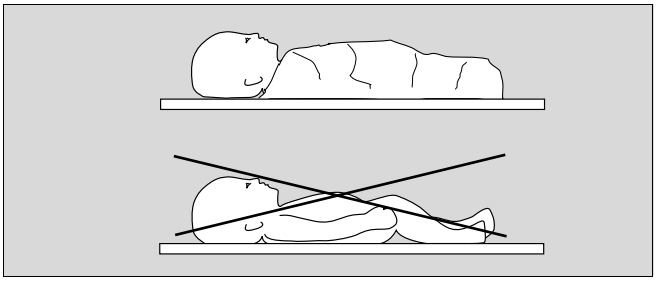
Using mattress heater with gel mattress without using radiant warmer (Babytherm 8010 only)

Normal settings:
The infant's central temperature will, in the long run, adjust to the mattress temperature. Therefore, the set mattress heater to a infant temperature appropriate for the particular infant, e.g. between 38.0 °C (100.4 °F) and 38.3 °C (100.9 °F) for a premature baby and to 37 °C (98.6 °F) for a term newborn.

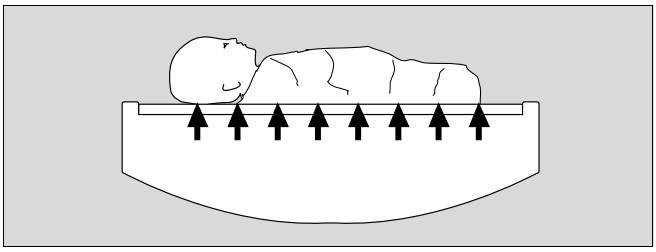
WARNING !

Check infant temperature at regular intervals as prescribed by hospital protocol and adjust temperature setting to individual patient needs.

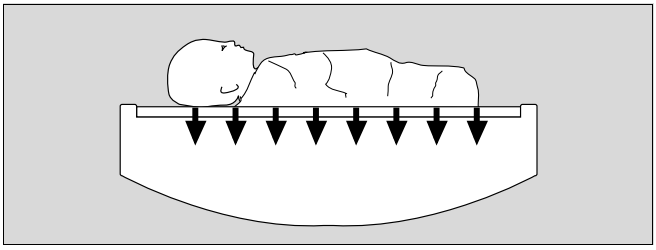
- Always cover and/or dress the infant. Do not place thicker blankets or other insulating material under the infant, since they obstruct heat transfer to and from the bed (warming/ cooling). Only use a thin cotton sheet as a cover for the gel mattress.



- Warming the patient up:
  Set the mattress temperature setpoint to the desired infant (central) temperature or, if necessary, slightly higher in order to reduce the warming period.



- Cooling the patient:
  Set the mattress temperature to a value lower than the current infant temperature, e.g. to 36.0 °C (96.8 °F).

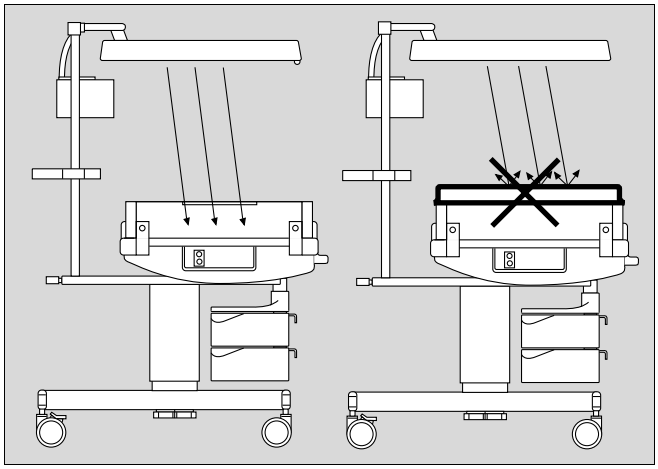


Using radiant warmer only

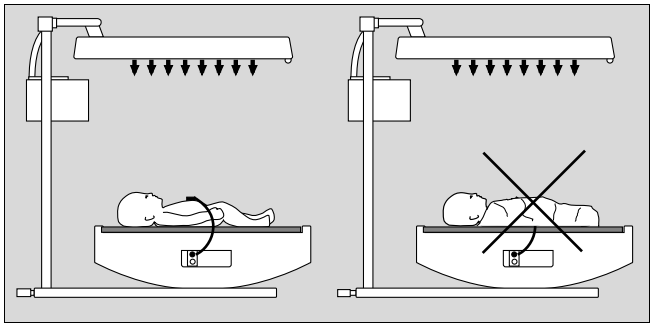
WARNING !

Check the infant temperature at regular intervals as prescribed by hospital protocol and adjust temperature setting to individual patient needs.

- **The radiant warmer is less effective when the bed canopy is used.**
  (The acrylic glass of the bed canopy is only partially translucent to the infrared radiation of the radiant warmer).



- Do not cover or clothe the infant. Otherwise, the effect of the radiant warmer is not as effective.

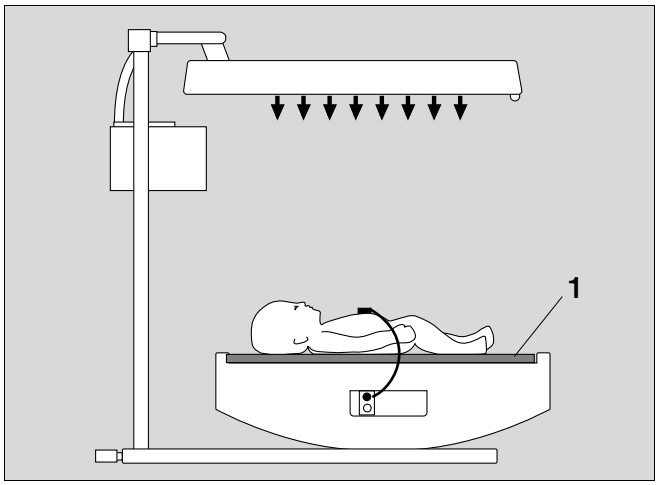


Radiant warmer without mattress heater Babytherm 8004

1 Always use a foam mattress.

WARNING !

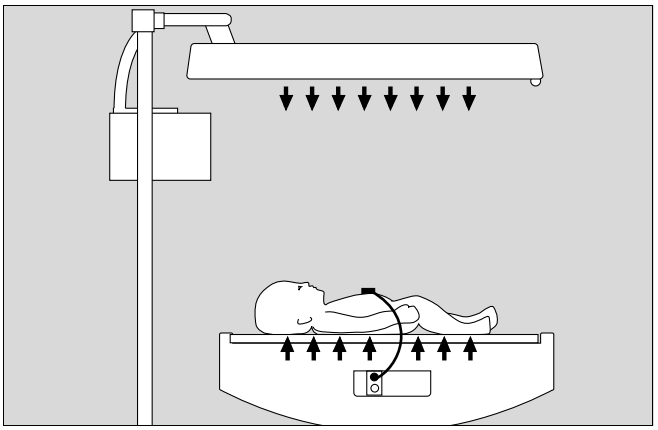
Do not use a gel mattress with Babytherm 8004. The unheated gel mattress will cool the infant. Risk of hypothermia can occur!



Using radiant warmer in combination with mattress heater and gel mattress (Babytherm 8010 only)

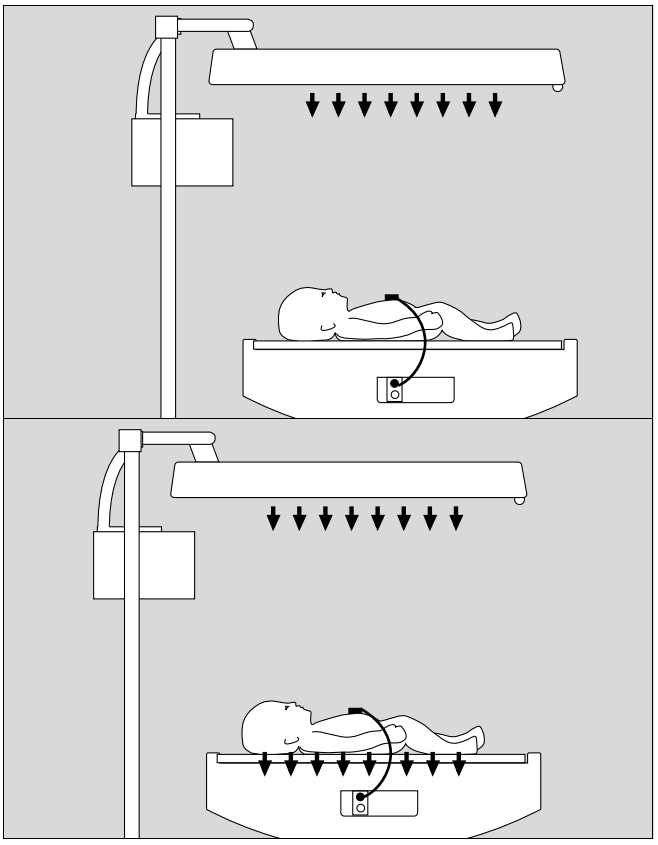
Normal setting:
Set mattress temperature to the **central temperature** appropriate for the infant, e.g. between 38.0 °C (100.4 °F) and 38.3 °C (100.9 °F) for a premature baby and 37.0 °C (98.6 °F) for a term newborn.
Adjust skin temperature setpoint to the **skin temperature** appropriate for the infant, e.g. 37.0 °C (98.6 °F) for a premature baby and 36.5 °C (97.7 °F) for a term newborn.

- To raise infant temperature:
  Set mattress temperature to desired infant (central) temperature. If necessary, set skin temperature to a slightly higher value. For a very hypothermic infant, set mattress temperature and skin control temperature to achieve infant temperature gain of approximately 1 °C.



- To stabilize or maintain infant temperature:
  Set mattress temperature to a value appropriate for the individual infant, e.g. 38 °C (100.4 °F)for a premature infant. Set skin control temperature for the radiant warmer according to protocol.
  After the infant has stabilized, observe the average output of the radiant warmer on the bar graph. Raising or lowering of the setpoint for the mattress heater lowers or raises of the average radiant warmer output.
  To minimize insensible water loss, the average radiant warmer output should be as low as possible while maintaining the infant's temperature.

- To lower infant temperature:
  Set mattress temperature to the desired infant (central) temperature. If necessary, set skin control temperature to a slightly lower value.



Using the Bed Canopy

When the bed canopy is in place, the side panels can be folded down.

WARNING !

Never leave the Babytherm infant warmer unattended with the side panels open. Risk of patient injury! Infant may fall out of the bassinet.

CAUTION !

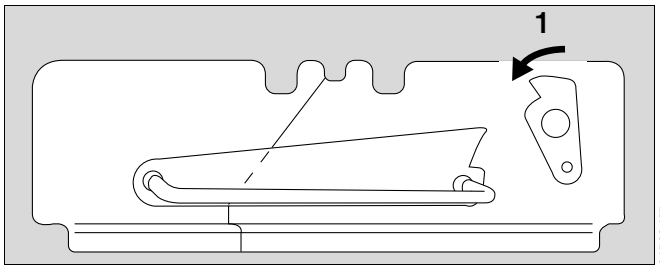
When using external phototherapy devices, keep in mind that the maximum load on the bed canopy is11 kg (24 lbs).

The bed canopy should **not** be used as a convenient area to place objects, clothing, etc.

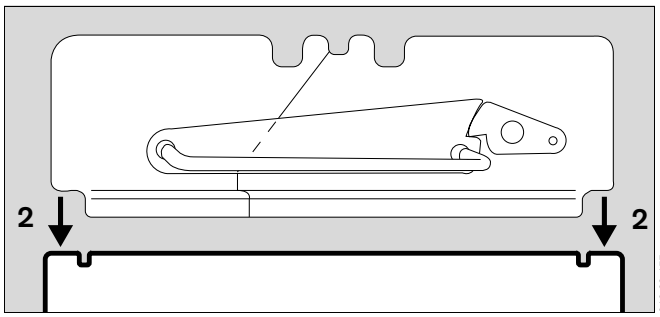
Installing the bed canopy

Check whether the bed canopy is in the closed position; otherwise:

1 Turn lock until it engages to close the bed canopy.



2 Hold bed canopy handles with both hands and place it over the side panels.



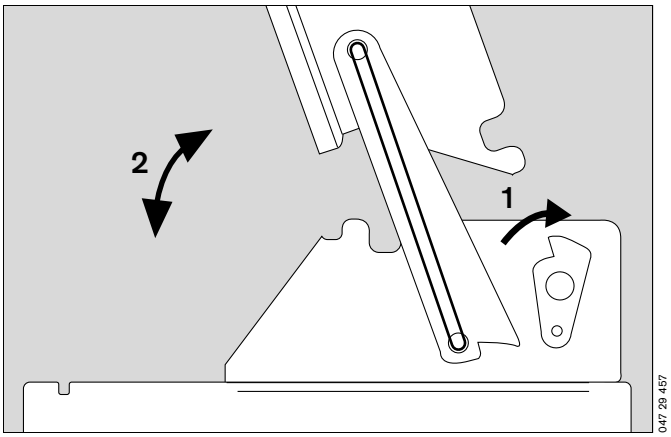
It is recommended to use the higher side panels (230 mm, 9 inches) when using the bed canopy.

Opening / closing the bed canopy

1 Turn lock to unlock bed canopy

2 Swivel handles upwards until they engage to open the bed canopy. The infant is now accessible for care and treatment procedures.

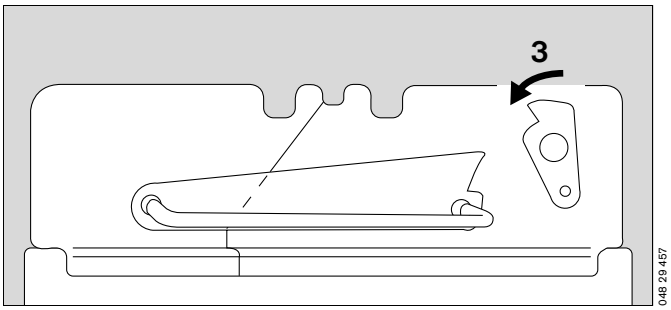
2 Swivelg handles forward to close the bed canopy.



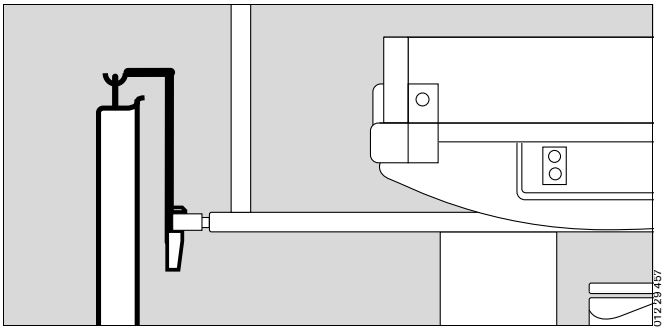
Removing the bed canopy

3 Turn lock until it engages, to place the bed canopy in the closed position

- Hold handles with both hands to remove the bed canopy (follow instructions on the bed canopy).



- Hang bed canopy onto its bracket.



Using Phototherapy (Available Option)

Only use the phototherapy lights indicated, see "Technical Data", page 76. Using other types of lights can affect the safety and effectiveness of the phototherapy.

WARNING !

Always use eye protection for the infant when using phototherapy. Check regularly that the eye protection is correctly positioned.

WARNING !

Always consider all aspects of an infant's diffferentiated diagnosis to ensure that no life-saving measures are delayed.

Regularly measure the patient's bilirubin level. Beware of possible toxic effects of bilirubin photoisomers.

WARNING !

Always operate phototherapy lights in combination with radiant warmer. Otherwise risk of hypothermia for the undressed infant can occur.
Infant temperature must be closely monitored during phototherapy because of the additional transfer of heat to the infant.
Do not use reflective foil to boost the effect of phototherapy. A dangerous rise of the infant temperature can occur when using reflective foil.

WARNING !

Phototherapy can upset the the patient's water balance. During phototherapy, the supply of fluids to the infant must be increased, e.g. by parenteral infusion, to compensate for the increased water loss.
Dangerous body temperatures can occur when using reflective foil.

WARNING !

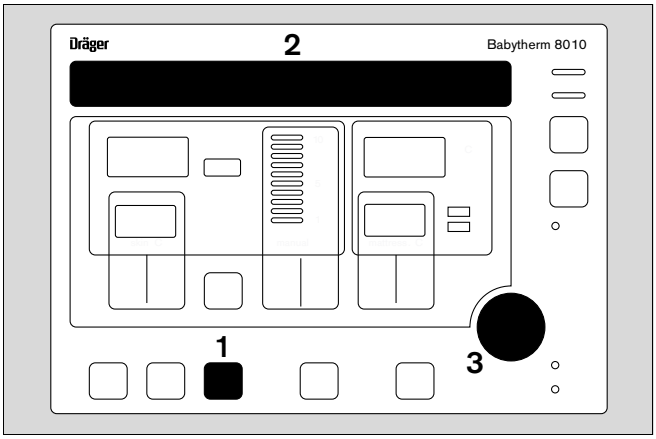
Avoid direct eye contact with the radiation source for an extended period of time when in use.
Use eye protective devices for patients in the immediate vicinity of the phototherapy device (e.g. goggles and shields).
Users should avoid remaining in the area of irradiation for extended periods due to the risk of sunburn.

Monitor the patient's core temperature regularly using a separate thermometer.

- Swing radiant unit over infant. Phototherapy lights should be positioned vertically above infant for full effectiveness of the therapy.

Switching phototherapy lights on

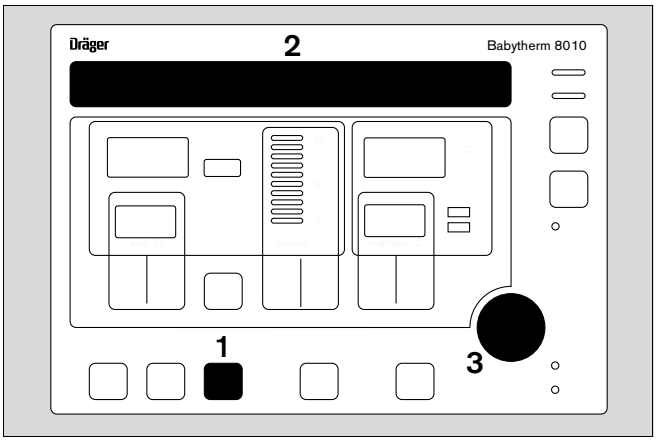
1 Press button. The yellow LED in the button will start blinking.
2 The following message appears in the text display:
»Phototherapy: Use eye protection
Press OK button to start XX:XX:XX«
3 Press **OK** button to switch the phototherapy lights on.
2 The following message appears in the text display for 5 seconds:
»Duration of phototherapy XX:XX:XX«
1 The yellow LED in the button is now continuously lit.



Resetting the duration of phototherapy

1 Press button for 3 seconds.
2 The following message appears in the text display:
»Duration of phototherapy XX:XX:XX
Press OK to confirm reset«
3 Press **OK** button to reset the counter.
2 The display now reads:
»Duration of phototherapy 00:00:00«

The counter is reset automatically when the unit is switched off.



When using the radiant warmer in the "man." mode:

- Reduce radiant warmer output level by approximately 3 increments when compared to operation without phototherapy

NOTE: When using the radiant warmer in "skin" mode, heater output is automatically adjusted to the infant's heat requirements.

Switching phototherapy lights off

1 Press button.
2 The following message appears in the text display:
»Phototherapy turned OFF
Press OK button to confirm XX:XX:XX«
3 Press **OK** button to switch the phototherapy off.
1 The yellow LED in the button will go out.

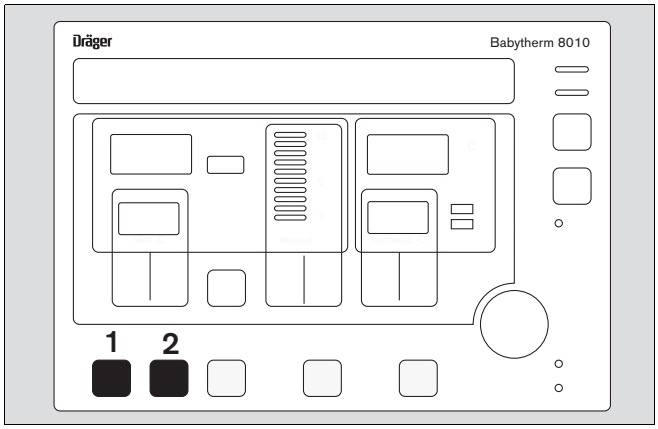
Switching Lighting On/Off

1 Press button. The bed surface will now be illuminated by the examination light.

1 Press button again. The examination light is switched off.

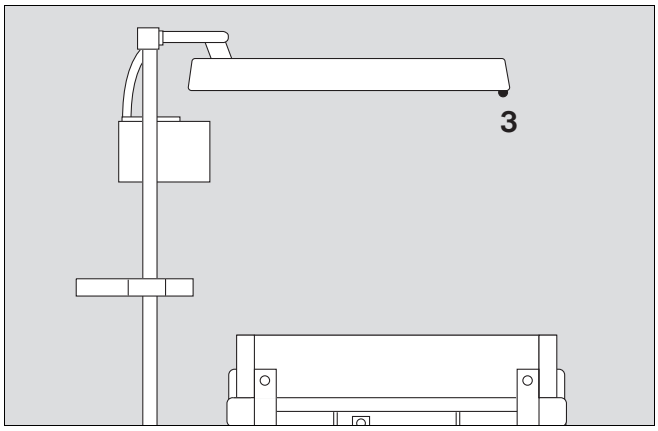
2 Press button. The bed surface will now be illuminated by the night light.

2 Press button again. The night light is switched off.



Central Alarm

3 The red light on the radiant warmer flashes whenever an audible alarm is emitted.
As soon as the alarm is acknowledged, the light will go out.



Oxygen Therapy

WARNING !

Fire Hazards from oxygen!
- **Open flames or cigarettes!**
- **Textiles, plastics, and oils readily ignite in an oxygen enriched atmosphere and burn with great intensity.**
- **Keep oxygen valves, connections, and seals free from oil and grease.**
- **Open valves slowly.**
- **Do not operate Babytherm in the presence of flammable anesthetics or disinfectants.**
- **Do not use or store flammable liquids such as alcohol, ether, or acetone inside the Babytherm bassinet.**
- **Do not use electrical equipment inside canopy with the exception of devices approved for use in explosive environments.**

WARNING !

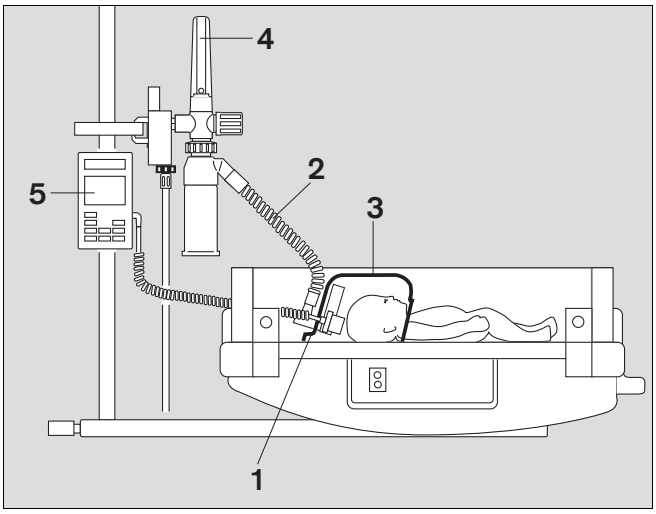
Physiological risks of oxygen !
- **Oxygen therapy only on the order of a physician**
- **Elevated oxygen concentrations must be selected on the basis of arterially measured oxygen partial pressure in the infant's blood. Otherwise risk of hyperoxemia (eye injuries with consequential blindness) or hypoxemia (brain injuries) can occur.**
- **Monitor oxygen concentration at all times during therapy using an independent oxygen analyzer.**

O_2 hood

1 Place the sensor of the oxygen analyzer with the adapter ring in the star-shaped cuff cut-out. Plug the connector into the analyzer.
2 Connect the O_2 supply hose to the hood.
- Lay infant on his/her back.

3 Place hood over the infant's head: the hood must rest on the mattress. Do not seal the collar area.
4 Set the O_2 supply at the metering valve of the flow meter: 0.5 to 4 L/min.
5 Monitor O_2 concentration with the O_2 analyzer.

After use
- Remove the hood from the infant.
- Close the valve on the O_2 flowmeter
- Dismantle and clean/disinfect the oxygen therapy accessories, see page 64.



Injector and closed bed canopy

WARNING !

Always closely monitor infant temperature when bed canopy is in use.

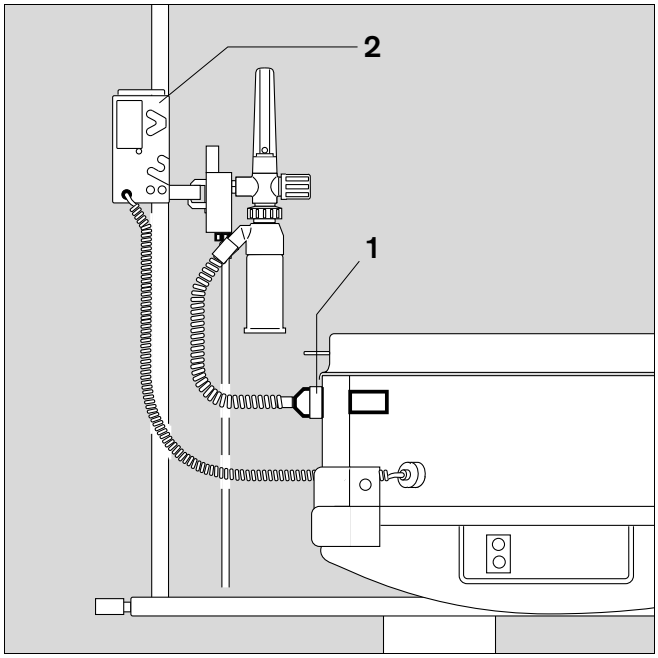
- Place the canopy in position (see page 52).

1 Set the O_2 concentration on the injector: 30, 40, 50 % vol. O_2.

- Set the O_2 supply on flowmeter.

Injector setting	Vol.% O_2	28	35	40
O_2 supply	L/min	5	10	15

2 Monitor the O_2 concentration with the O_2 analyzer.



After use

- Open the bed canopy.
- Close the valve on the O_2 flowmeter.
- Dismantle and clean/disinfect the oxygen therapy accessories, see page 64.

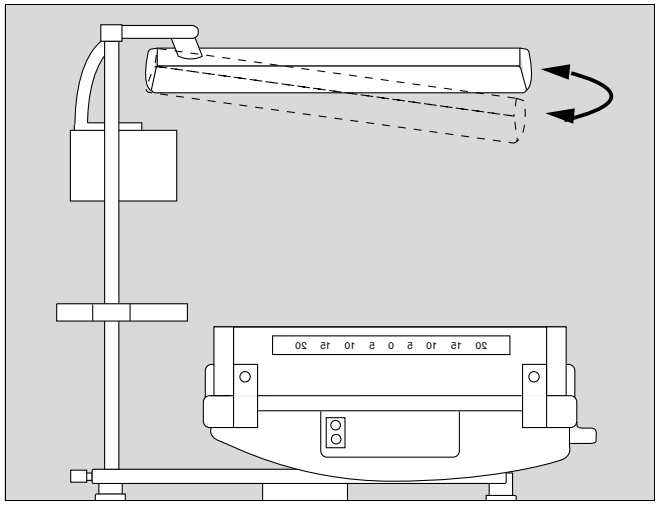
Suction

Use bronchial suction equipment in accordance with its specific Instructions for Use.

Taking X-Rays

Babytherm 8010,
Babytherm 8004 without x-ray tray

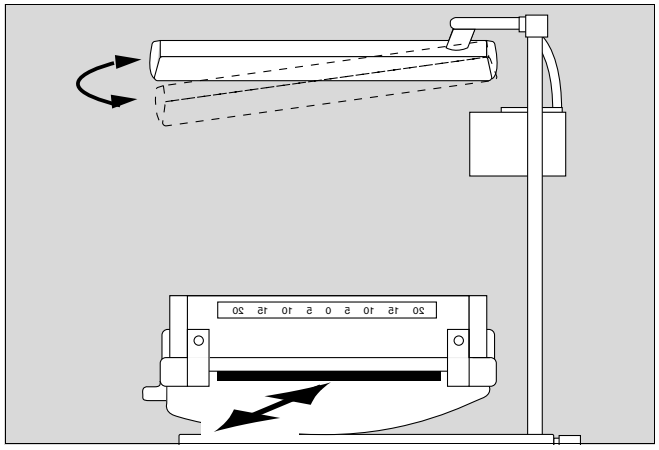
- Swing the radiant warmer to one side. The infant will continue to be warmed.
- Place the x-ray film cartridge directly underneath the infant.
- Position the x-ray machine above the bed surface.



Babytherm 8004 with x-ray tray

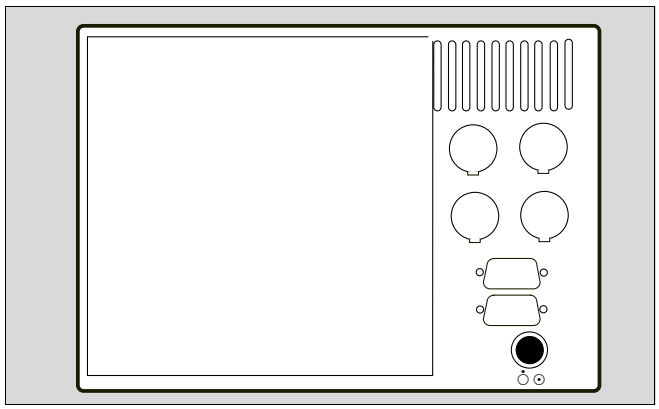
NOTE: The x-ray tray has no lock and can be completely removed from the Babytherm bassinet.

- Pull out the x-ray tray and insert the x-ray cartridge, placing it according to the position of the infant. Use the scale on the side panels and x-ray tray as a guide.
- Push the x-ray tray in.
- Swing the radiant warmer to one side and position the x-ray machine.
- After taking x-ray, remove the x-ray cartridge from the tray and push the tray in again.
- After removing the x-ray machine, swing the radiant warmer back into position.



Shutting Down

- Press the On/Off button. The green **»On«** LED will go out.



Configuration

WARNING !

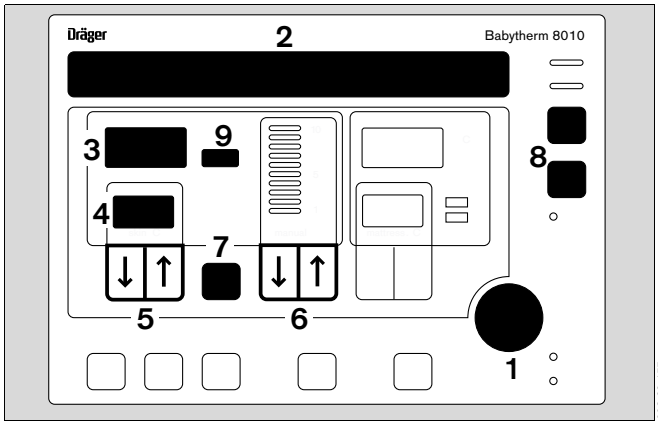
Do not perform any infant care or therapy while configuring the system, because normal equipment functions (e.g. temperature measurement, alarms) are disabled.

Activities available in configuration mode

Code	Configuration Mode
c01	Show current software version
c02	Set skin temperature threshold
c03	Set volume of alarm speaker
c04	Operating hours of phototherapy
c05	Test control panel buttons
c06	Test nurse call
c07	Set language
c08	Set display
Err	Error mode

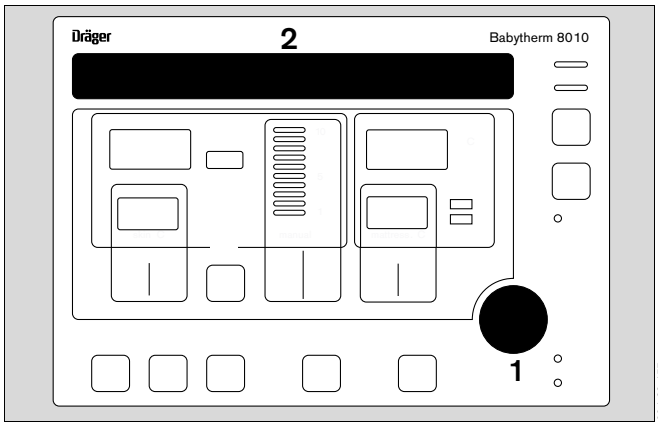
NOTE: Control panel keys and displays have a different function than in radiant warmer operation mode.

1 Activate/cancel configuration modes
2 Provides information regarding current mode
3 Displays abbreviation of current mode
4 Displays code for current mode
5 Advance to/from mode
6 Increase/decrease values for selected mode
7 Activate/leave error reporting mode
8 State changes within mode
9 Display setting for current mode



Activating Configuration Modes

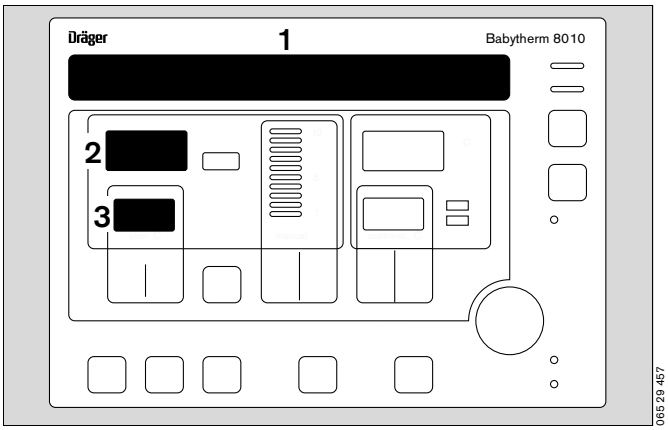
1 Press **OK** button for 3 seconds.
A brief alert will sound.
2 The following message appears in the text display:
»Configuration Mode
Press OK button to start«
1 Press **OK** button again. A brief alert sounds again.
The configuration modes are now active.
The device defaults to mode **c01** and displays the current software version.



Using Configuration Modes

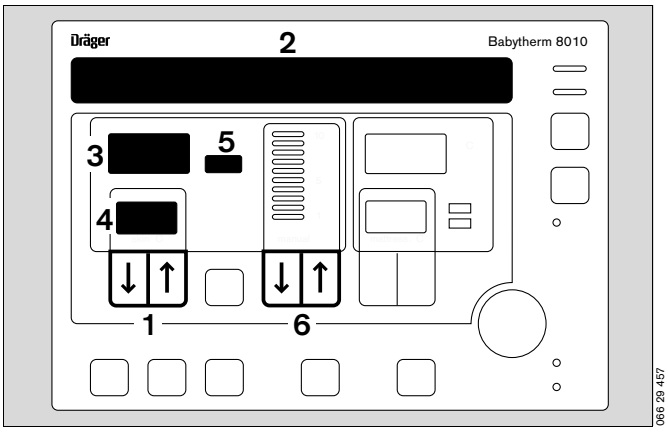
Show software version

1 The following message appears in the text display:
»Configuration Mode
Mode c01: Software version«
2 The current software version is indicated: e.g. **»1.n«**
3 The code for the current mode is displayed: **»c01«**



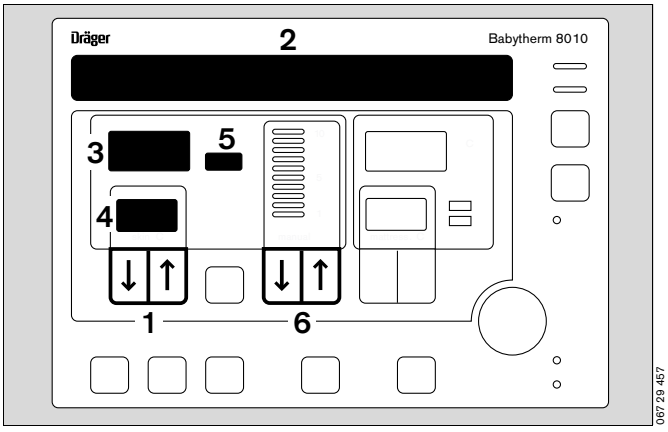
Set skin temperature alarm threshold

1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c02: Max. skin temperature fault«
3 Abbreviation for this mode is displayed: **»SdE«**
4 The code for the current mode is displayed: **»c02«**
5 The display shows the skin temperature alarm threshold, at which no alarm is yet generated.
Factory default: **1.0**
6 Press ↑ or ↓ buttons, until required value is displayed.
Values from 0.3 to 1.0 °C can be set in 0.1 °C increments.



Adjust speaker volume for alarm tone sequences

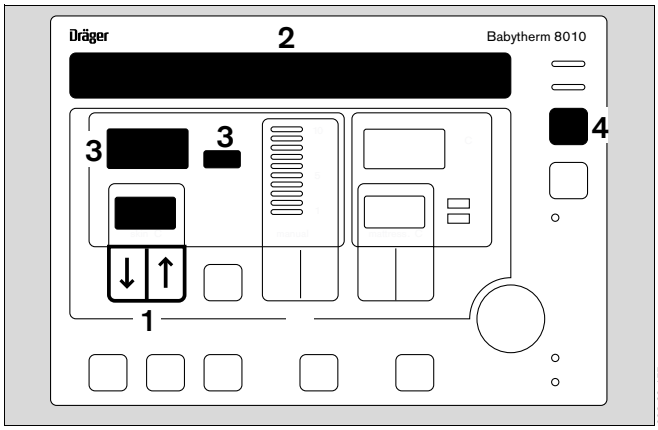
1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c03: Soft alarm start volume«
3 The abbreviation for this activity is displayed: **»SSL«**
4 The code for the current mode is displayed: **»c03«**
5 Set speaker volume is displayed.
Factory default: **2**.
A brief audible alarm tone is generated with the currently set volume.
6 Press ↑ or ↓ buttons until the desired value is displayed.
Values from 1 to 8 can be set.
A brief audible alarm sounds with the new volume setting.



Show hours of operation for phototherapy

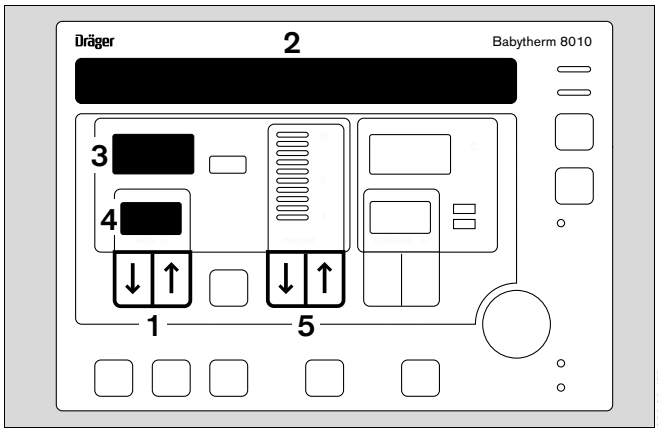
1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c04: Time counter photo therapy«
3 Operating hours up to 1000 hours is displayed.
4 Press 🔔 button for 3 seconds. The counter is reset to »**0**«.

NOTE: Resetting the counter must be performed when changing the bulbs of the phototherapy lights.



Test control panel keys

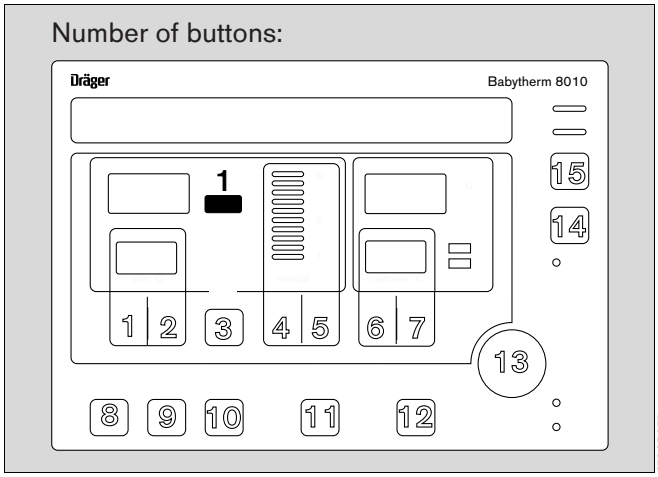
1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c05: Keyboardtest (inactive)«
3 The abbreviation for this activity is displayed: **»but«**
4 The code for the current mode is displayed: **»c05«**
5 Press ↑ or ↓ button and the test is activated.
2 The following message appears in the text display:
»Configuration Mode
Mode c05: Keyboardtest (active)«



- Press the buttons to be tested.

1 A string of digits appears on the display:
1st digit = number of buttons momentarily pressed
2nd and 3rd digit = number of last button pressed.

- Press 🔔 button for 2 seconds. The test is ended.

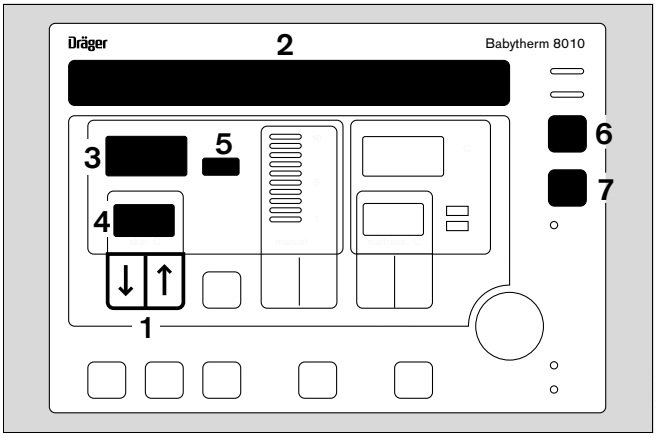


Test nurse call

1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c06: Nurse Call Relay«
3 The abbreviation for this mode is displayed: **»Nuc«**
4 The code for the current mode is displayed: **»c06«**
5 Display »**0**« = Nurse call relay open.
Display »**1**« = Nurse call relay closed.

6 Press 🔔 button until the relay is switched.

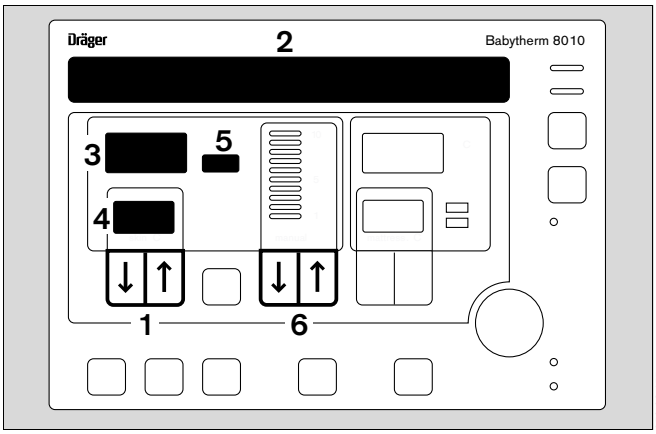
7 Press Check button for 4 seconds.
The relay is activated.
The "Inop" alarm is triggered: the red **inop** LED lights up and the continuous audible alarm sounds.



Select language

1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c07: Display language –> English«
3 The abbreviation for this mode is displayed: **»LAN«**
4 The code for the current mode is displayed: **»c07«**
5 The language number is displayed; setting **2** = English.

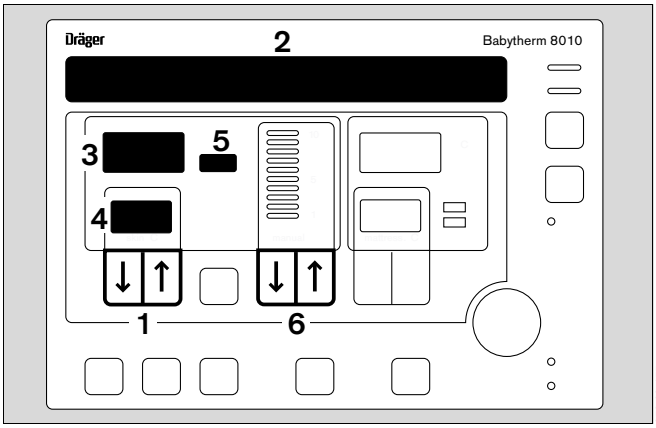
6 Press ↑ or ↓ button, until the number of the desired language is displayed.
Possible settings: from 1 to 11.



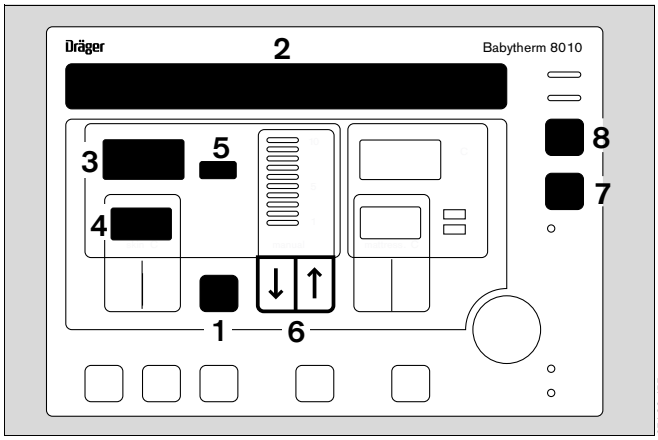
Set display contrast

1 Briefly press ↑ button.
2 The following message appears in the text display:
»Configuration Mode
Mode c08: Display contrast«
3 The abbreviation for this mode is displayed: **»CON«**
4 The code for the current mode is displayed: **»c08«**
5 The actual contrast value appears.
The default value is **»128«**

6 Press ↑ or ↓ button until desired contrast has been set. Possible settings: 1 to 255 in increments of 1.



Read error cache



1 Press button until error reporting mode is active.

2 The following message appears in the text display:
»Configuration Mode
Error memory«

3 The first error code is displayed: **»FXX«**

4 The display shows **»Err«**

5 The frequency of the error is indicated.

6 Press ↑ or ↓ button, and the next error is displayed.

7 Press Check button. The system runs a self-test.

8 Press button for 3 seconds. The error cache is erased.

Return to radiant warmer mode

- Press **OK** button.

Equipment Care

The Babytherm 8004/8010 infant warmer system must be thoroughly cleaned and disinfected after each patient, or at the frequency prescribed by hospital protocol. Perform any disinfection procedures according to established hospital protocol and in conformance to the following instructions.

WARNING !

Always follow accepted hospital procedures for handling equipment contaminated with body fluids.

For the cleaning and disinfecting of accessories, refer to their respective operating instructions.

Disassembly

- Switch off all device(s), disconnect power plugs from AC, and turn off all high pressure gas supplies.

WARNING !

Always disconnect power supply before cleaning and disinfecting.

- Remove any installed auxiliary equipment.
- Remove mattress from bed.
  Always store mattress flat.

CAUTION !
Do not fold gel mattress!

- Remove patient circuit clips.
- Remove silicone grommets.
- Swivel drainage canister bracket upwards and horizontally remove it from the hole.

Cleaning / Disinfecting / Sterilizing

CAUTION !
Certain components of the bassinet consist of materials that are sensitive to certain organic solvents sometimes used for cleaning and disinfecting (e.g., alcohols, phenols, halogen releasing compounds, oxygen releasing compounds, strong organic acids, etc.). Exposure to such substances may cause damage that is not always immediately recognized. Sterilization of the bassinet with ethylene oxide (EtO) is also not recommended.

CAUTION !
Do not expose Babytherm 8004/8010 to high levels of ultraviolet radiation. This may cause cracks in the acrylic glass components.

To prevent any damage, we recommend the use of detergents and disinfectants compatible with the materials used in the bassinet and its components and accessories, i.e. surface disinfectants on the basis of
— aldehydes, or
— quarternary ammonium compounds.

Ensure that all disinfectants are registered with the U.S. Environmental Protection Agency for use as intended. Always follow the instruction labels especially with respect to prescribed concentrations and the necessary exposure times.

- Before disinfecting/cleaning the radiant warmer, allow it to cool down for about 30 minutes.
- Do not allow any liquids to penetrate inside the device and/or the radiant warmer.

Sequential cleaning and disinfection procedures

Bassinet, inside and outside;
Side panels, inside and outside;
Inner panels, inside and outside;
Bed surface;
Mattress;
X-ray tray and mattress stretcher;
Bed canopy;
Chassis, including all attachments:

- Using a detergent, remove visible soiling with a disposable cloth.
- Use a disinfectant to wipe surfaces.
- After waiting the prescribed exposure time, wipe with a clean damp cloth and dry.

Silicone grommets

- Disinfect components in disinfectant bath. After immersing for the prescribed exposure time, rinse with clean water and dry.
- Then wash with a detergent and rinse with clean water; or
- sterilize at 120 °C (glove program).
- **Do not clean the reflectors on the infrared radiator with a damp cloth or brush!**

Gel mattress

- Wipe gel mattress with disinfectant.

Phototherapy lenses

CAUTION !
Only use detergents/disinfectants with a ph value of 7 to 9 for phototherapy lenses.

Before Next Use

- To reassemble components, see page 20 and following.
- After disinfection, operate the fully assembled unit for a few hours without a patient to eliminate any disinfectant residues.
- Set the mattress temperature to 37 °C.
- Set the radiant warmer to heater level 3 in "man." mode.

Before the next patient is placed in the unit:

- Install all therapy accessories required.
- Check that the unit is ready for operation, see page 27 and following.
- Verify that the mattress is sufficiently preheated (Babytherm 8010).

Replacement of Parts
Preventive Maintenance Intervals
Disposing of the Babytherm

Inspection and Maintenance

CAUTION !
Maintenance
The device must be inspected and serviced at regular intervals. A record must be kept on this preventive maintenance. We recommend obtaining a service contract with DrägerService through your vendor.
For repairs of the device we recommend that you contact DrägerService.

WARNING !

To avoid any risk of infection, clean and disinfect bassinet and accessories before any maintenance according to established hospital procedures – this applies also when returning units or parts for repair.

WARNING !

Always disconnect the power supply before servicing.

WARNING !

Never operate the infant warmer system if it has been physically damaged or does not seem to operate properly.
We recommend that you contact DrägerService for maintenance service for the Babytherm 8004/8010.

Replacement of Parts

WARNING !

When servicing the device, always use replacement parts that are qualified to Dräger standards.
Dräger cannot warrant or endorse the safe performance of third party replacement parts for use with Babytherm infant warmers.

Gel mattress	Patch over small cuts or other damage in the covering film with adhesive tape. Replace when the material has become brittle or large cracks appear or after approximately 2 years.
Silicone grommets	Replace when material has become brittle and/or sticky.
Lamps for procedure and night light	Replace if defective by factory trained and authorized service personnel.
Infrared lights	Defective lights should be replaced by trained service personnel. It is recommended that the lights be replaced after 10,000 operating hours.
Phototherapy lights	To maintain the specified therapeutic effect, all 6 lights must be replaced if a single light fails or after 1,000 hours of operation. Only the type of light specified should be used - see "Technical Data" on page 77.

Preventive Maintenance Intervals

Temperature measuring system	Check every 2 years by factory trained and authorized service personnel.
Inspection and maintenance (see “Definitions” on page 6)	Perform yearly by factory trained and authorized service personnel.

Disposing of the Babytherm

At the end of its service life:

- Dispose of the unit in accordance with all local, state, and federal waste disposal regulations.

or

- Ask a licensed waste management company to dispose of the unit.

Contact your local environmental agency for further details.

Troubleshooting

General System Failures

Message	Likely Causes	Remedy
Red LED ⏻ lit. Continuous audible alarm.	Power failure	Check that unit is connected to power. Check that power is switched on. Remove from service.
Red **Inop.** LED lit. Audible alarm.	Device failure	Remove from service.
Text display message: **»Battery charge low«**	Unit has been switched off for a relatively long time.	Battery will be charged automatically when unit is switched on. Display disappears after 15 minutes.

Mattress Heater (Babytherm 8010)

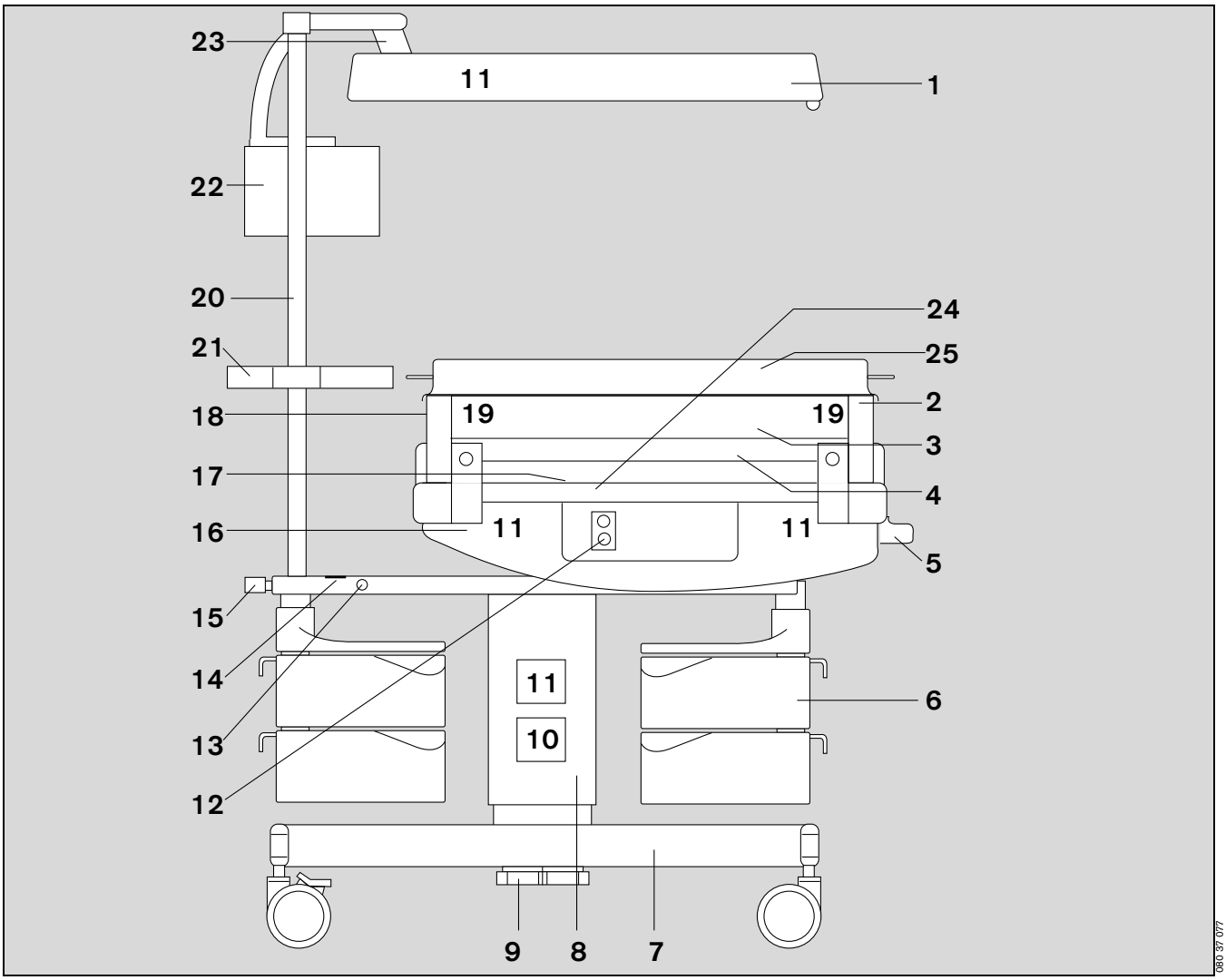
Message	Likely Causes	Remedy
Yellow LED blinking. Measured value display flashing. Text display message: **»Mattress temp. deviation above 1 °C«** Audible alarm. or The **»Skin temp. deviation below X °C«**, alarm will sound.	Measured mattress temperature deviates from set value by more than ±1 °C.	If the measured value is higher than the set value: Measure the core temperature! Check the plug connection. Ensure plug is fully inserted. If necessary, contact DrägerService. If the measured value is lower than the set value: Check whether both infrared radiators are providing warmth by placing your hand carefully at a safe distance from the radiant heater. Check that the skin temperature sensor is correctly attached. If necessary, contact DrägerService.
Red LED blinking. Measured value display blinking. Text display message: **»Mattress temp. above 40 °C«** Audible alarm.	Mattress temperature above 40 °C (104 °F).	If used in combination with radiant heater, reduce output level of the radiant heater.
Red LED blinking. Three middle segments of the measured value display blinking. Text display message: **»Mattress temp. sensor fault«** Audible alarm.	Temperature sensors in heating panel faulty.	Remove from service.
Three dashes at top of measured value display. Three dashes at bottom of measured value display. Text display message: **»Mattress temp. below 5 °C«**	Mattress temperature >45 °C (113 °F) Mattress temperature <5 °C (113 °F)	Wait until mattress temperature is below 45 °C (113 °F). Wait until mattress temperature is above 5 °C (41 °F).

Radiant Heater

Message	Likely Causes	Remedy
Yellow LED blinking. Measured value display blinking. Text display message: **»Skin temp. deviation above X °C«** Audible alarm.	The measured skin temperature deviates from the set value by more than the skin temperature deviation threshold set in configuration mode (0.3 °C to 1.0 °C) (32.5 °F to 33.8 °F).	If the measured value is lower than the set value: check that the skin temperature sensor is correctly attached. If the measured value is higher than the set value, measure infant temperature.
Red LED blinking. Three middle segments of the measured value display blinking. Text display message: **»Plug in skin temp. sensor«** Audible alarm.	Skin temperature sensor not connected or sensor faulty.	Check connection. Switch to "man." mode; replace sensor and then switch back to "skin" mode.
Red LED blinking. Three middle segments of the measured value display blinking. Text display message: **»Skin temp. sensor fault«** Audible alarm.	Sensor faulty.	Switch to "man." mode; replace sensor and then switch back to "skin" mode.
Red LED blinking. Measured value display flashing. Text display message: **»Skin temperature above 39 °C«** Audible alarm.	Skin temperature >39 °C (102.2 °F)	Check that the peripheral skin temperature sensor is correctly attached. Check that the infant is not being heated by additional heat sources, e.g. phototherapy or sunlight.
Three dashes at top of measured value display. Text display message: **»Skin temp. above range«** Three dashes at bottom of measured value display. Text display message: **»Skin temp. below range«**	Skin temperature >42 °C (107.6 °F) Skin temperature <15 °C (59 °F)	Check that the skin temperature sensor is correctly attached.
Three dashes at top of measured value display. Text display message: **»Peripheral temp. above range«** Three dashes at bottom of measured value display. Text display message: **»Peripheral temp. below range«**	Peripheral skin temperature >42 °C (107.6 °F) Peripheral skin temperature <15 °C (59 °F)	Check that the peripheral skin temperature sensor is correctly attached.
Red LED blinking. Three middle segments of the measured value display blinking. Text display message: **»Peripheral temp. sensor fault«** Audible alarm.	Sensor faulty.	Replace sensor.

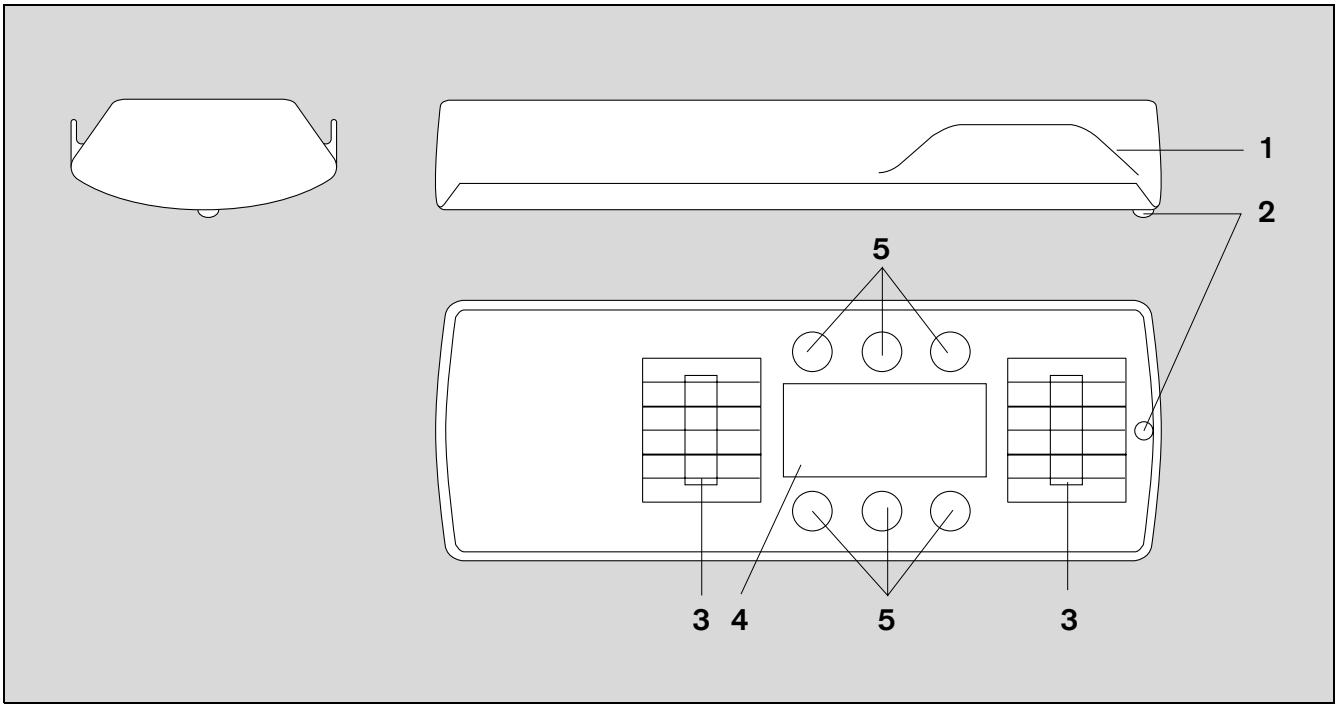
What's What

Overview



1 Radiant warmer
2 End panel
3 Side panel
4 Inner panels (2 each)
5 Handle with inner release bar for tilting the bassinet
6 Swivel cabinet (available option, left and/or right)
7 Chassis with 4 castors, which can be locked
8 Height-adjustable column (available option)
9 Foot controls for variable height-adjustable column (8)
10 Height adjustment warning label
11 Main WARNING/CAUTION label
12 Skin temperature sensor connector:
top socket, yellow, for measuring and controlling central skin temperature;
lower socket, white, for measuring peripheral skin temp.
13 Grounding pin (equipotential bonding connection)
14 Identification and rating plate
15 Accessory mounting rail
16 Bassinet
17 Gel mattress for use with mattress heater;
foam mattress for use without mattress heater
18 Silicone grommets
19 Warning label "Never leave baby unattended..."
20 Support poles
21 Monitor shelf
22 Control unit with control panel
23 Swivel joint for radiant heater, ±90°
24 X-ray tray at rear, not illustrated – Babytherm 8004 only
25 Bed canopy

Radiant Warmer



1 Handle

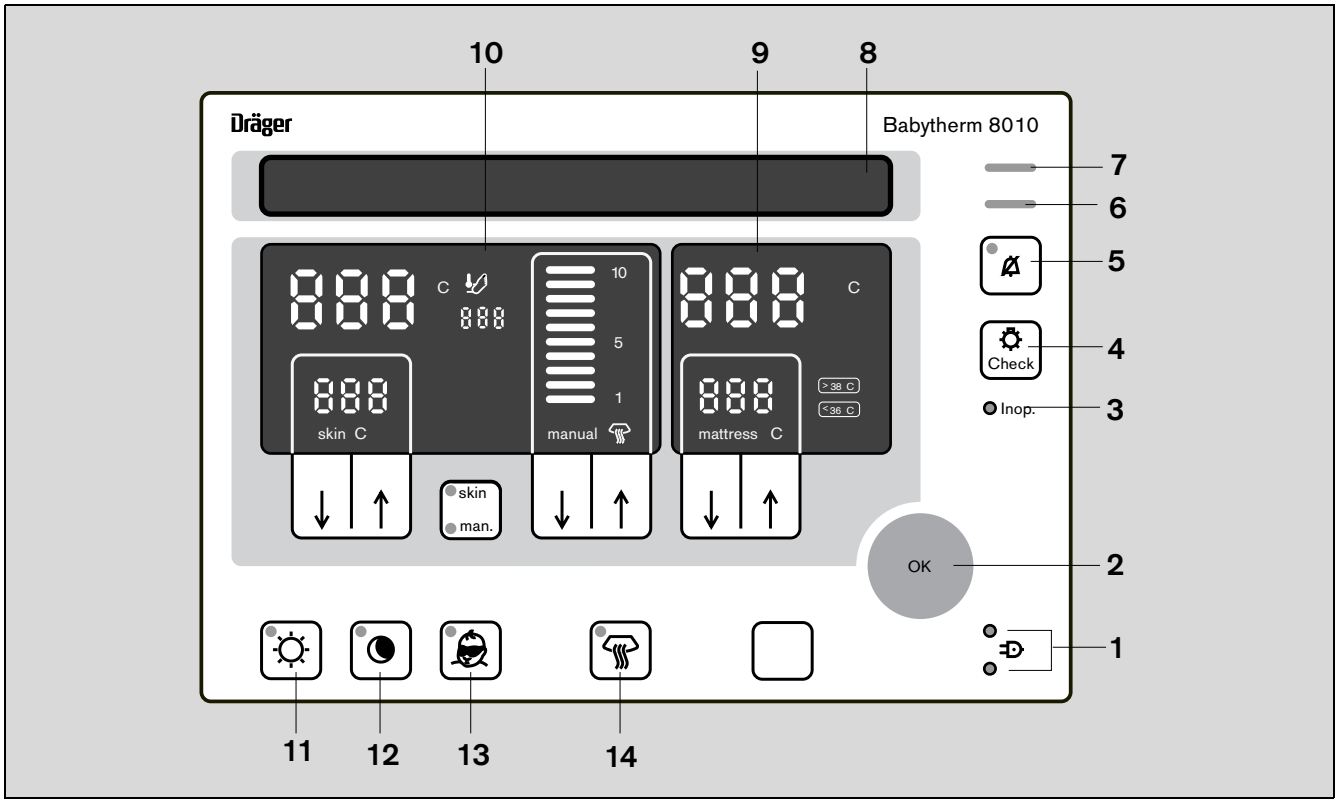
2 Red central alarm light

3 Heater elements

4 Examination light / night light

5 Phototherapy lights (available option), set of 6

Controller



1 ON/OFF indicator:
The green LED is lit when the unit is ON.
The red LED is lit after a power failure.

2 OK button for confirming settings and acknowledging alarms.

3 Red Inop. LED
indicates device fault.

4 Button for checking LEDs, displays and audible alarm.

5 Button for muting the audible alarm.

6 Yellow alarm LED
blinks for Caution level alarm.

7 Red alarm LED
blinks for Warning level alarm.

8 Text display provides advisory messages for the user and prompts the user to confirm/acknowledge.

9 Display and keypad for operating the mattress heater.

10 Display and keypad for operating the radiant warmer.

11 On/Off buttons for examination light;
yellow LED in button is lit when examination light is on.

12 On/Off button for night light;
yellow LED in button is lit when night light is on.

13 On/Off button for phototherapy;
yellow LED in button is lit when phototherapy lamps are on (blue background).

14 On/Off button for radiant heater;
yellow LED in button is lit when radiant warmer is on.

Display and keypad for mattress heater Babytherm 8010

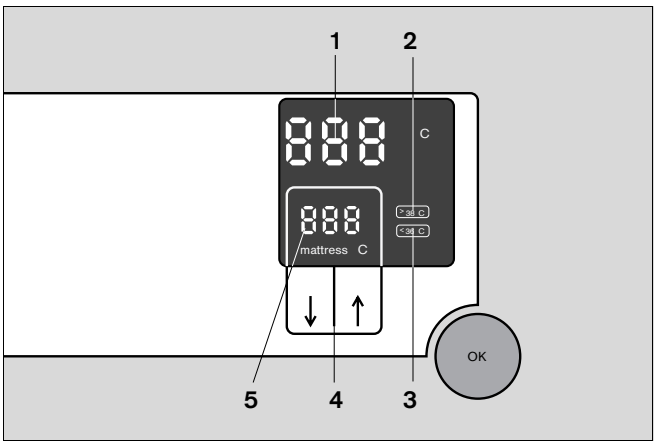
1 Display of measured (actual) mattress temperature

2 Indicator for upper extended range >38 °C

3 Indicator for lower extended range <36 °C

4 Keys (buttons) for setting the desired mattress temperature

5 Display of set (target) mattress temperature



Display and keypad for the radiant warmer

1 Display of measured skin temperature

2 Foot symbol for peripheral ("toe") skin temperature; lit when the peripheral skin temperature sensor is connected.

3 Display of measured value for peripheral skin temperature; only possible when the peripheral skin temperature sensor is connected.

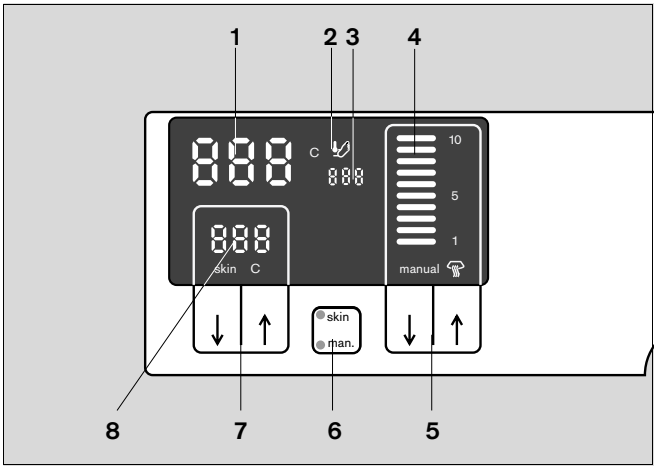
4 Display of radiant warmer output level;
Levels 1 to 3: green
Levels 4 to 10: yellow

5 Keys (buttons) for setting radiant warmer output level

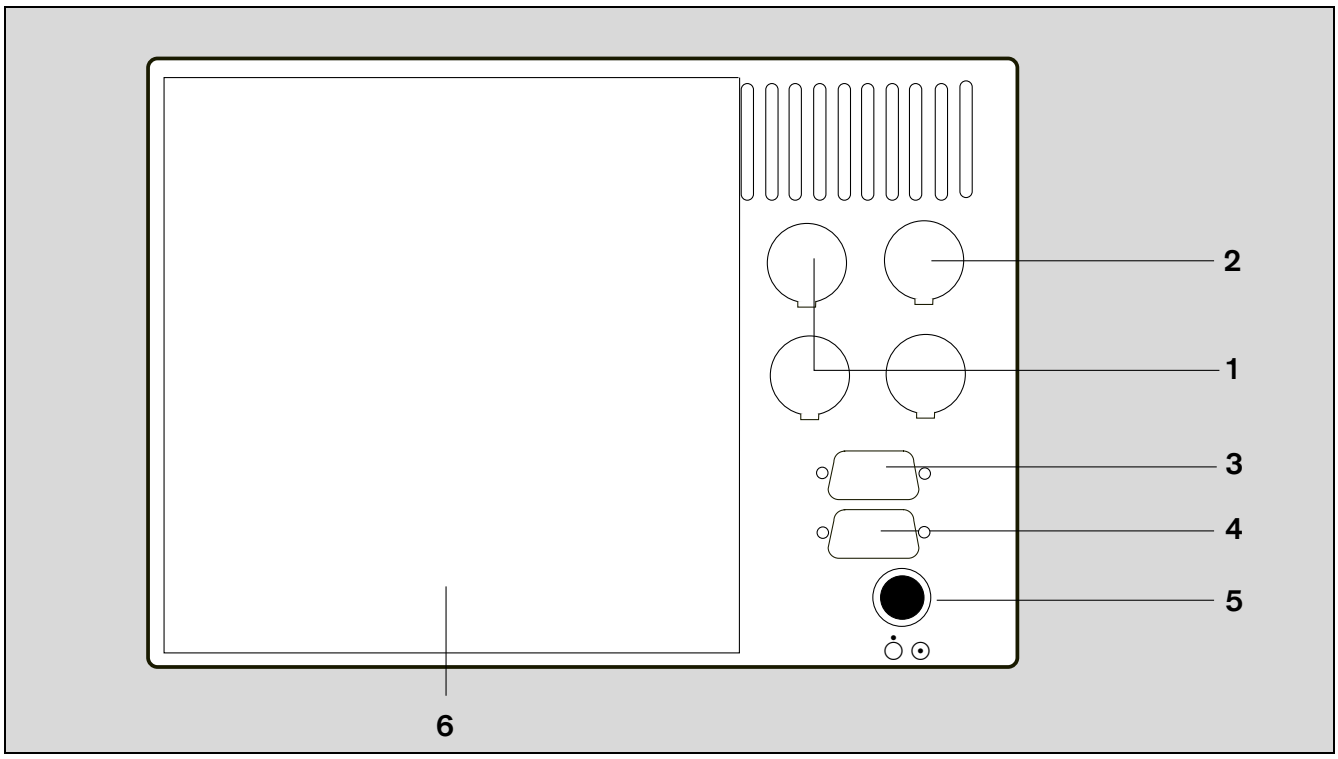
6 Button for selecting between operating modes "man." (manual) and "skin" (skin temperature control); yellow LED corresponding to the selected mode stays lit.

7 Keys (buttons) for setting the desired skin temperature

8 Display of skin temperature setpoint



Controller - Rear View



1 Input ports for connecting the nurse call from up to three equipment units at the workstation (connections for central alarm)

2 Output for connection to internal paging systems, nurse call (connection for central alarm)

3 RS 232 interface (BabyLink), available option

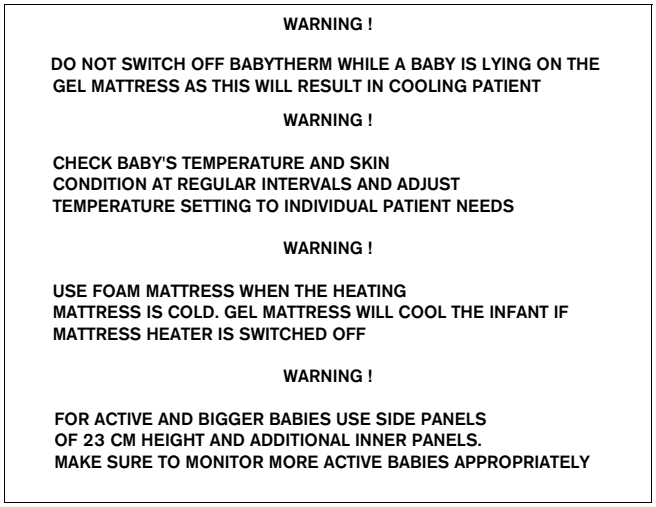
4 RS 232 interface (modem), available option

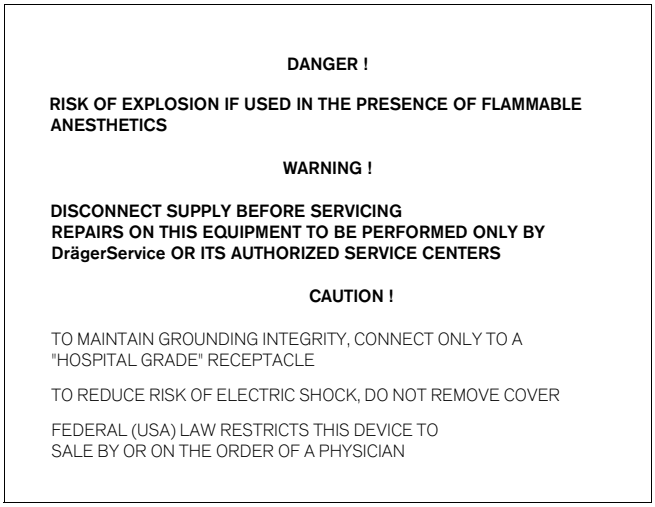
5 Controller ON/OFF switch;
○ = OFF, ⊙ = ON

6 Cover panel

Labels

1 Main WARNING/CAUTION label

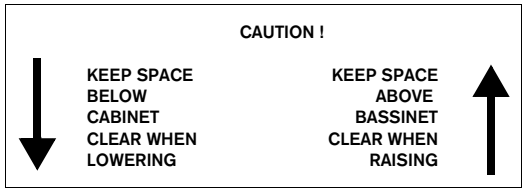

WARNING !
DO NOT SWITCH OFF BABYTHERM WHILE A BABY IS LYING ON THE GEL MATTRESS AS THIS WILL RESULT IN COOLING PATIENT
WARNING !
CHECK BABY'S TEMPERATURE AND SKIN CONDITION AT REGULAR INTERVALS AND ADJUST TEMPERATURE SETTING TO INDIVIDUAL PATIENT NEEDS
WARNING !
USE FOAM MATTRESS WHEN THE HEATING MATTRESS IS COLD. GEL MATTRESS WILL COOL THE INFANT IF MATTRESS HEATER IS SWITCHED OFF
WARNING !
FOR ACTIVE AND BIGGER BABIES USE SIDE PANELS OF 23 CM HEIGHT AND ADDITIONAL INNER PANELS. MAKE SURE TO MONITOR MORE ACTIVE BABIES APPROPRIATELY


DANGER !
RISK OF EXPLOSION IF USED IN THE PRESENCE OF FLAMMABLE ANESTHETICS
WARNING !
DISCONNECT SUPPLY BEFORE SERVICING
REPAIRS ON THIS EQUIPMENT TO BE PERFORMED ONLY BY DrägerService OR ITS AUTHORIZED SERVICE CENTERS
CAUTION !
TO MAINTAIN GROUNDING INTEGRITY, CONNECT ONLY TO A "HOSPITAL GRADE" RECEPTACLE
TO REDUCE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER
FEDERAL (USA) LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A PHYSICIAN

2 Side panel WARNING labels (2x)

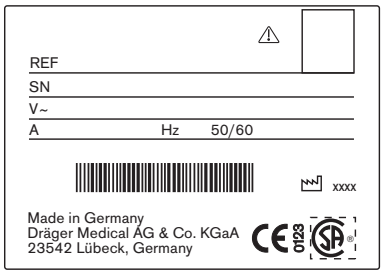
3 Servicing WARNING label

4 Height adjustment CAUTION labels (2x)



5 ID label, Dräger Medical Inc. (Importer)

6 ID label radiant warmer,
Dräger Medizintechnik GmbH Lübeck



7 ID label bassinet,
Dräger Medizintechnik GmbH Lübeck

8 Radiant heater WARNING labels (2x)

WARNING !
DO NOT TOUCH OR COVER TOP OF RADIANT HEATER
DO NOT TOUCH PROTECTIVE SCREEN
DANGER OF BURN INJURIES!

9 Canopy label

NOTE!
ENSURE FLAP IS LOCKED BEFORE LIFTING!

Technical Data

Ambient conditions

For operation	
Temperature	15 °C to 35 °C
Atmospheric pressure	900 hPa to 1060 hPa
rel. humidity	0 to 75 %, no condensation
Air velocity in air-conditioned rooms	max. 0.3 m/s
For storage/transport	
Temperature	–20 °C to 60 °C
Atmospheric pressure	700 hPa to 1060 hPa
rel. humidity	0 to 90 %, no condensation

Radiant heater

Radiant power at a distance of 80 cm between the bed and the radiant warmer	
Heat level 3	10 mW/cm^2
Heat level 10	30 mW/cm^2
Lamps	120 V
Examination light	23 W / 20 W
Night light	9 W
Minimum clearance between top edge of radiant warmer and ceiling	>50 cm

Skin temperature measurement:	
Sensor	we recommend use of Drager sensors, see page 81.
Measuring range/Display range	15 °C (59 °F) to 42 °C (107.6 °F)
Accuracy (sensor)	±0.1 °C
Accuracy of complete measuring system (not including sensor)	±0.2 °C
Setting range	35 °C to 37.5 °C

Mattress heater (Babytherm 8010 only)

Temperature measurement	5 °C (41 °F) to 45 °C (113 °F)
Measuring range/display range accuracy	±0.5 °C between 20 and 42 °C ±2 °C in all other parts of range
Setting range	30 °C to 38.5 °C

Height adjustment (optional)

Height adjustment range	295 mm (11.6 inches)
Specified operation	Intermittent operation (1 min. operation followed by 60 min. cooling period)

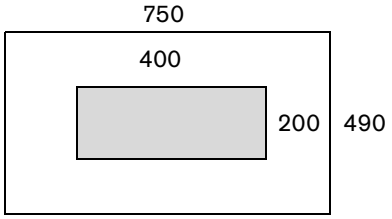
Bed canopy

CO_2 concentration with bed canopy installed	max. 0.2 %

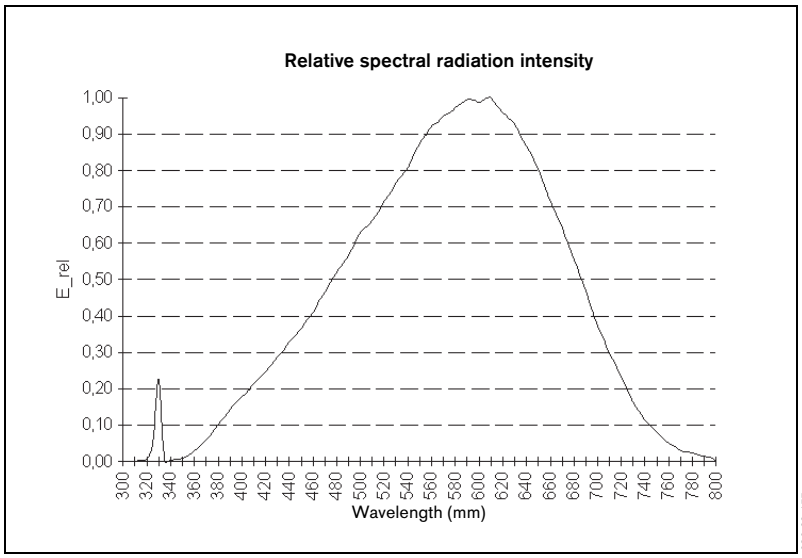
Phototherapy (optional)

Lights	Philips Masterline Plus halogen lights, model 13674 12 V / 50 W (set of 6) or Philips Brilliantline Pro halogen lights, model 14619 12 V / 50 W (set of 6)
Opening angle	24^o
Radiation intensity at a distance of 80 cm and useful area of 400 x 200 mm	9.5 W/m^2

Irradiated useful area on the bed (mm)



Relative spectral radiation intensity as a function of wavelength



Operating data

Mains voltage 100/120 V / 50/60 Hz

Current consumption A	Babytherm 8004			Babytherm 8010		
	100 V	110 to 127 V	220 to 240 V	100 V	110 to127 V	220 to 240 V
without height adjustment without phototherapy	4.9	5.7	3.0	6.1	6.7	3.5
without height adjustment with phototherapy	—	9.3	4.9	—	10.3	5.4
with height adjustment without phototherapy	8.7	10.3	5.4	9.9	11.4	5.9
withheight adjustment with phototherapy	—	13.9	7.3	—	15.0	7.8

Power consumption

Radiant heater	600 W
Mattress heater (Babytherm 8010)	160 W
Lighting	20 W
Height adjustment (optional)	560 W
Phototherapy (optional)	400 W

Fuses

100 V /120 V F 15 A UL 248-14, 2 units

Height adjustment (optional)

100 V /120 V T 6.3 A L 250 V; IEC 127-2/III (2 units)

Standards

IEC/EN 60601-1
IEC/EN 60601-2-35, for mattress heater
IEC/EN 60601-2-21, for radiant warmer

Electrical protection class I

Skin temperature sensor Type BF

Heating surface of mattress Type BF

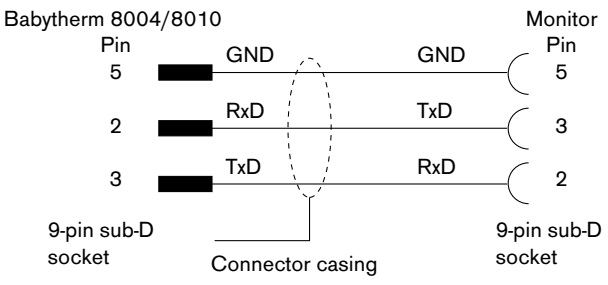
Classification Class IIb
(according to EC Directive 93/42/EC Appendix IX)

UMDNS-Code 15-610
(Universal Medical Device Nomenclature System)

Electromagnetic compatibility (EMC) according to IEC/EN 60601-1-2

Interface RS 232

Level measured according to DIN 66020
Monitor cable (Part No. 83 06 488)
Wiring layout diagram

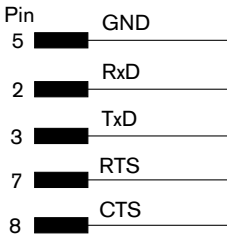


087 29 457

Modem interface RS 232

Connection for external modem for service purposes

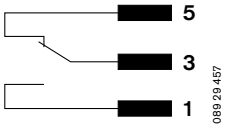
Wiring layout diagram



The two RS 232 interfaces are electrically coupled to each other and with the central alarm input.

Central alarm	Output for connecting internal paging systems (nurse call)
Operating voltage	max. 24 V
Current	max. 250 mA
Power	max. 3 W

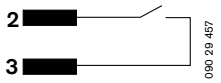
Potential-free, two-way contact



Input

Connection of the nurse call from up to 3 devices (the red central alarm LED lights up for every alarm forwarded from these devices to the Babytherm 8004/8010).

Potential-free, normally open contact



Interfaces, optional

All interface signals are electrically isolated from the patient sector.
Dielectric strength 1.5 kV.

Dimensions

Length x width	1315 x 750 mm (51.8 x 29.5 inches)
Overall height	
Unit without height adjustment	1960 mm (77.2 inches)
Unit with height adjustment	1896 to 2210 mm (74.6 to 87.0 inches)
Working height of bed surface	
without height adjustment	1025 mm (40.4 inches)
with height adjustment	885 to 1180 mm (34.8 to 46.5 inches)
Bed dimensions	750 x 490 mm (29.5 x 19.3 inches)
Bed tilting	adjustable in small increments
Tilt	maximum of 20° front end down maximum of 15° front end up
Height of side panels	150 mm (5.9 inches) or 230 mm (9.1 inches)
Height of inner walls	70 mm (2.8 inches)

Weight (with one cabinet)

Unit without height adjustment	
with mattress heater	133 kg (293 lbs)
without mattress heater	120 kg (265 lbs)
Unit with height adjustment	
with mattress heater	120 kg (265 lbs)
without mattress heater	110 kg (243 lbs)
Freight	
Dimensions	1200 x 800 x 1600 mm (47.2 x 31.5 x 63.0 inches)
Weight	172 kg (380 lbs)

Ordering Information

Name and Description	Part No.
Babytherm 8010 with mattress heater and skin temperature control, 100 V / 120 V	**FR 00 105**
Babytherm 8004 with skin temperature control and X-ray tray, 100 V / 120 V – chassis with electric height adjustment or chassis with fixed column – without swivel cabinet, with 1 swivel cabinet or with 2 swivel cabinets (only for chassis with electric height adjustment) – Interfaces – Integral phototherapy	**2M 30 404**
Accessories	
Swivel cabinet	2M 20 638
Cabinet installation kit	2M 20 868
Interface option	2M 30 268
Phototherapy kit	2M 30 450
MediCable	83 06 488
Bed canopy	2M 30 392
Bed canopy bracket	2M 21 342
Infusion bottle holder	2M 21 514
Ventilation hose bracket	2M 21 191

Name and Description	Part No.
Swivel tray	2M 21 186
Rail clamp adapter bracket	2M 85 337
Cable clips (bag of 4)	G 13 171
Shelf	2M 21 158
Shelf bracket	
Center distance: 37 mm	G 13 822
Center distance: 170 / 240 mm	G 13 821
Double clamp	G 13 147
Pole for small items	
Ø 25 mm, length 50 mm	G 13 831
Ø 25 mm, length 110 mm	G 13 823
Rails	
Length: 400 mm	G 13 851
Length: 600 mm	G 13 829
Length: 800 mm	G 14 449
Shelf rail	2M 21 161
Basket 150	M 25 121
Basket 300	M 26 145
Basket 600	M 26 146
Waste bag holder	M 24 695
Connecting hose clip	2M 85 446
Suction hose clip	2M 85 239

Name and Description	Part No.
Suction	
Set hooked rail (Set of fixtures for suction kit below the mattress)	2M 21 150
Oxygen therapy with canopy	
Injector for 23 cm side panels	2M 14 190
O_2 flowmeter, 0 to 16 L/min	2M 85 501
Nebulizer	2M 85 835
Spiral hose, 1m (set of 5)	2M 85 811
Consumables/accessories	
Foam mattress for unheated bed surface	2M 21 012
Gel mattress for use with mattress heater	2M 20 827
Repair kit for gel mattress	2M 21 324
Mattress cover sheet	2M 21 272
ThermoTrace™ skin temperature sensor, yellow, box of 5 (for single use)	MX 11 000
ThermoTrace™ skin temperature sensor, white, box of 5 (for single use)	MX 11 001
ThermoPad™, box of 50	MX 11 002
Halogen lamp, box of 6 (Philips Masterline Plus, model 13674 or Philips Brilliantline Pro, model 14619)	2M 30 084
Lamps for bed lighting (examination light)	2M 30 079
Lamps for night light	2M 30 078
Silicone grommet	2M 20 434
Drainage canister hook	2M 21 293
Waste bag	M 26 240
Service documentation on request	

Parts List

Instead of the part nos. shown in the Order List, the following parts or units no longer in the Dräger product range can be used:

Name and Description	Part No.
Canopy	2M 21 030

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These Instructions for Use apply only to
Babytherm 8004/8010
with Serial No.:

If no Serial No. has been filled in by Dräger, these Operating Instructions are provided for general information only and are not intended for use with any specific machine or device.

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